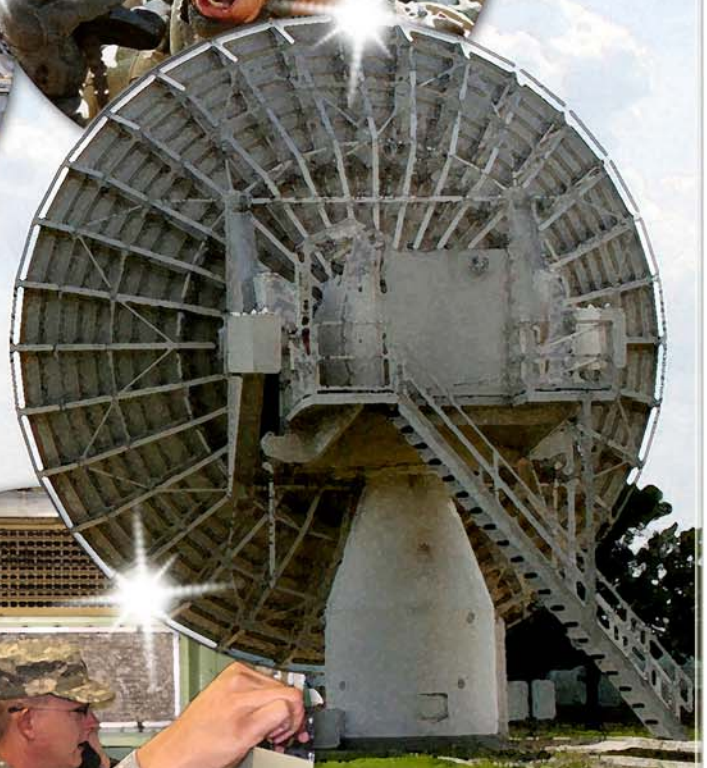


ARMY *Communicator*

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CORE COMPETENCIES

PROVIDING SEAMLESS COMMUNICATIONS NETWORKS
AND INFORMATION SERVICES

Plus:
BG Randolph P. Strong bids
farewell to the Signal Center

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Chief of Signal's Comments

Strong bids farewell to the Signal Center

Fellow Members of the Signal Regiment,

It has been my honor and a privilege to serve as your Chief of Signal for the past two years. Nevertheless, in July, my role as your Chief of Signal comes to an end, and I will take up a new assignment in the Army CIO/G6. I'll be passing the Regimental colors on with confidence to a great friend and Signaleer – BG Jeff Foley.

During my tenure, you have excelled in providing communications and information services that enable warfighters to deploy, fight, and win the global war on terrorism while simultaneously endeavoring in the most significant and all encompassing transformation of the Army since World War II. Your efforts have ensured one of the most complex and successful transformations of any single branch in our Army.

I am amazed at the professionalism, efficiency, and overall Regimental synergy achieved during this transformation. More than 20 years ago, transforming to mobile subscriber equipment required five years just to begin new equipment fielding, even though we maintained the Regiment's basic force structure.

In contrast, transformation to Joint Network Node only required six-months of equipment development time before deploying modular formations using JNN in Operation Iraqi Freedom. Once completed, our structure, unit designations, and personnel manning will reflect a uniquely different Signal Regiment. While JNN fielding continues, the Regiment has achieved equilibrium with re-



BG Randolph P. Strong
Chief of Signal

spect to force structure and warfighting readiness. Every member of the Regiment contributed to this unprecedented success story.

The fielding of distributed networks and the proliferation of new information technology in thousands of digital, wireless devices on the battlefield has ushered in significant changes for signal personnel. Our military occupational specialties continue to evolve with new and emerging technologies. During the past several years, we witnessed the creation of two additional MOS - 25N, JNN Operator - Maintainer, and 25E, Electromagnetic Spectrum Manager. 25N was rapidly crafted after the Army's decision to transform to the JNN suite of equipment. This new MOS will take us from circuit switch to internet protocol

based networks, and it will eventually absorb most of our 25F Soldiers through reclassification and training. MOS 25E Soldiers will soon enter the force to support network operations, control of sensors, and weapon systems, and electronic warfare operations. In the net-centric environment, the battalion/brigade S6 and the division and corps G6 have assumed increased responsibility and importance. Accordingly, we now have MOS 250N, Network Technician, and 254A, Signal Systems Support Technician warrant officers, and Functional Area 53, Information Systems Management officers, in the brigade combat teams and support brigades. The S6 is now a "key developmental position" and the division G6 is a "key billet" on the command selection list.

The Regiment leads the Army in a number of professional development initiatives and that includes training. There is an urgent need to get trained and ready Signal Soldiers and leaders into the operational force where they can have an immediate and positive impact. To achieve this end, we redesign our resident training programs on the fly to keep up with spiral insertion of new technology into the force. We established the LandWarNet-University to educate and train Signal Soldiers and leaders enabling life-long learning wherever they are assigned. LWN-U delivers training and education to our Soldiers in the field, and it presents a standard for the Army and Joint community to emu-

*Chief of Signal Comments Continued
on the Inside Back Cover*



Your efforts have ensured one of the most complex and successful transformations of any single branch in our Army. I am amazed at the professionalism, efficiency, and overall Regimental synergy achieved during this transformation.

COMMAND

Commander/Commandant

BG Randolph P. Strong

Command Sergeant Major

CSM Michael Terry

EDITORIAL STAFF

Editor-in-Chief/Graphic Designer

Janet A. McElmurray

Senior Adviser

Susan Wood

Illustrators

Billy Cheney

Photography

Billy Cheney, Steve Larsen, Bonnie Heater, Tammy Moehlman, 1LT Charles Cabel, CPT Julia Donley, 1LT Gregory Van Bemden, SPC Evan D. Marcy, Harold Schliesske

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Army Communicator

Voice of the Signal Regiment

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Cover: Signal Regiment Core Competencies are the five core competencies identified for the Regiment that support the mission domain - see the story on Page 2. Cover by Billy Cheney

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Official:

Joyce E. Morrow
JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army

By Order of the Secretary of the Army:

GEORGE W. CASEY JR.
General, United States Army
Chief of Staff

0708003

Defining Signal Regiment *Core Competencies*

By BG Randolph P. Strong
and MAJ Russell A. Fenton

The Army operates in a joint, interagency, and multinational environment that is increasingly complicated, uncertain, and dynamic. Advances in information technologies have revolutionized the Army's ability to share information and collaborate with mission partners, creating new central principles and paving the way for significant increases in the integration of operations. This integration is accomplished through the establishment of ubiquitous and seamless network connectivity and interoperability. Net-centricity ultimately assists in creating smaller, agile, more lethal forces that can rapidly combine capabilities from different services at the appropriate level, to efficiently accomplish an increased range of missions.

These changes in the way we fight combined with technological advances have had a significant impact on the Signal Regiment's doctrine, organizations, training, materiel, leader development, personnel and facilities. Since the mid-1980s, the Regiment's mission domain was defined as the Information Mission Area and our core competencies were automation, communications, visual information, records management, printing, and publications. These met our needs during the era of circuit switching capabilities provided by Mobile Subscribe Equipment, large area communications networks, single purpose communications devices, etc, etc. In today's world of packet switching and everything over to Internet Protocol, these competencies no longer apply.

After significant analysis,

lengthy review, and a lively vetting process, the Signal Center adopted a new mission domain title for the Signal Regiment which is "Communications Networks and Information Services". This dovetails with Joint and Army doctrine and it captures the full depth and breadth of the Signal Regiment's mission in several words. We also identified five core competencies for the Regiment that support the mission domain —

- **Network management/enterprise systems management – NM/ESM**
- **Information assurance/computer network defense – IA/CND**
- **Information dissemination management/content staging – IDM/CS**
- **Electromagnetic spectrum operations – EMSO**
- **Visual information, or VI, operations**

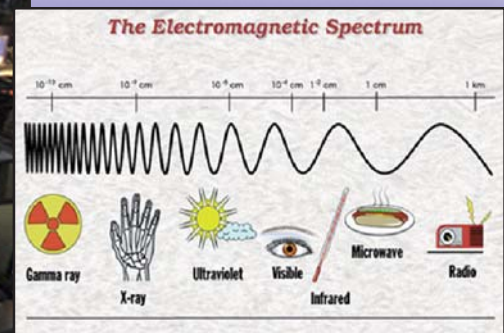
These new core competencies will better assist us in developing doctrine, organization, training, materiel, leadership and education, personnel and facilities solutions in the increasingly complex, highly technical, communications and information services mission domain. Additionally, we hope that they will empower you to better inform your leadership on what capabilities and value you bring to your unit.

We need to digress and explain the relevance of core competencies. One author defines core competencies as "aggregates of capabilities, where synergy is created that has sustainable value and broad applicability." Another proposes that "a core competency is a combination of complimentary skills and knowledge bases embedded in a group or team that results in the ability to execute one or more critical pro-

cesses to a world class standard." A core competency can take various forms in a variety of environments, but from a military perspective, a core competency entails a high-level of proficiency that enables an organization, or in our case a branch, to provide a distinct, unique and valuable capability for the conduct of warfighting operations. Understanding core competencies allows an organization, our Regiment, to focus and invest in the strengths that differentiates us from others and set strategies that unify the entire organization.

During several of our vetting sessions, a number of recommendations were considered; for example—install, operate, and maintain transport systems; conduct convoy operations; achieve information superiority; and enable a net-centric information enterprise were submitted. Yet, these recommendations were determined to be either Signal functions or tasks, or Army core competencies. More specific but overarching and enduring functions needed to be identified. Fortunately, we had to look no further than Army and joint doctrine, our own training model, and the core functions being performed by Signal organizations across the enterprise.

From the business infrastructure in the generating force to the tactical units occupying the forward operating bases in warfighting theaters, the most common operational thread throughout the depth and breadth of the Regiment is network operations. NETOPS consist of three proficiencies: network management/enterprise systems management; information assurance/computer network defense; and information dissemination management/content staging.



All three of these proficiencies are considered the information technology industry's best business practice model for providing IT services to the end user. Moreover, these best business practices enable the Army to operate in a net-centric, joint, interagency, and multinational environment. All three proficiencies are unique, distinct and critical to full spectrum operations.

The electromagnetic spectrum management function has historically been relegated to a network management sub-component. More recently, the importance of electromagnetic spectrum operations in supporting other warfighting capabilities such as electronic warfare and the control of remote air and ground vehicles has elevated EMSO into a warfighting capability in itself on par with network management. Last but not least, visual information operations continue to be a critical and unique service in providing combat camera and



graphic illustration capabilities that support information operations and civil affairs missions. Both EMSO and VI are unique, distinct and critical to full spectrum operations.

We recognize that the core competencies comprising NETOPS are probably unfamiliar terminology

for many of you. Additionally, you may be asking yourself, "where is the execution piece of what our Signal Soldiers perform on a daily basis?" As networks are pushed down and become more pervasive in the future force, signal Soldiers and leaders must know and under-

stand these terms, and they must be able to convey signal capabilities and requirements to the warfighters in these terms. Moreover, it must be understood that execution is an inherent part of management or operations. Meanwhile, in order to ensure that the Regiment's competencies are well understood by both signal and non-signal Soldiers alike, we further defined the competencies and their subordinate functions as follows:

- **NM/ESM – Engineer, install, operate, manage, service and restore communication networks, systems, and applications**

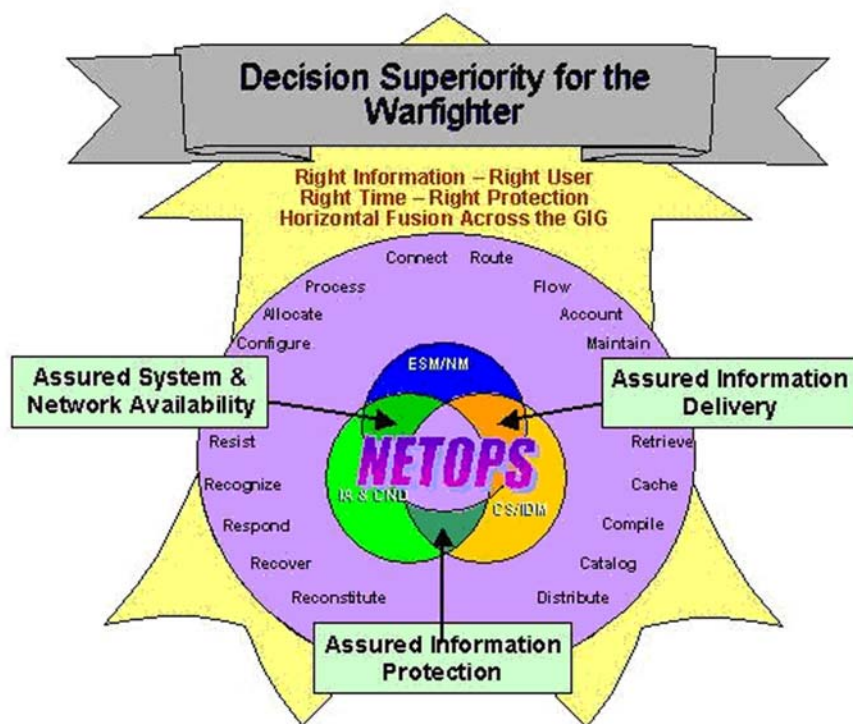
- ❖ Engineer, install, operate, manage, service and restore communications networks
- ❖ Install, operate, manage, service and restore communication systems
- ❖ Administer and optimize communications networks, systems, and applications
- ❖ Detect, isolate, and resolve communication networks, systems, and application faults

- **IA/CND – Protect and defend the communications networks, systems, and information services**

- ❖ Prevent an attack or disruption to communication networks, systems, and information services
- ❖ Detect an attack or disruption to communication networks, systems, and information services
- ❖ Recover communication networks, systems, and information services capabilities
- ❖ Respond to an attack or disruption to communication networks, systems, and information services

- **IDM/CS – Emplace, manage, provide and restore information services**

- ❖ Establish a secure data staging area



- ❖ Facilitate movement of real-time and stored information
- ❖ Provide data awareness
- ❖ Achieve data interoperability

- **EMSO – Plan, coordinate, and control the use of the electromagnetic spectrum**

- ❖ Enable the use of the electromagnetic spectrum
- ❖ Supervise and optimize the use of the electromagnetic spectrum
- ❖ Protect the use of electromagnetic spectrum

- **VI Operations – Document, produce, process, transport and provide visual information and services**

- ❖ Document and produce digital/conventional still, video, and graphic imagery
- ❖ Edit digital/conventional still, video, and graphic imagery into a completed product
- ❖ Transport digital/conventional still, video, and graphic imagery to user

- ❖ Detect, isolate, and resolve visual information system faults

Presently, the Signal Center is assessing the impact of these new core competencies on each of the DOTMLPF domains. Our objective will be to develop an action plan for incorporating the core competencies into our products—for example field manuals, programs of instruction, new equipment training, professional development pamphlets, organizational structure, etc—and to develop a roadmap for setting goals, communicating and obtaining total involvement in core capability development across the Regiment. For Soldiers and leaders in the field, we want to ensure that we provide you with the resources necessary to support the development of core competencies and ultimately, the Regiment's mission. Moreover, we want to provide you with the knowledge required to clearly explain to your leadership, the capabilities that signal elements provide to your unit. This article is just the first step in many efforts to do just that.

We also recommend that you

read FM 6-02.71, *Network Operations*, FM 6-02.70, *Electromagnetic Spectrum Operations*, FM 6-02.40, *Visual Information Operations*, and JP 6-0, *Communication Systems*, in order to learn more about each competency.

These new core competencies will unify the Regiment across all organizations and units at every echelon in our complex and ever-changing “net-centric” environment. They will help Soldiers and leaders understand the Regiment’s priorities, improve the transfer of skills and knowledge among the members, assist in determining where to allocate resources and how best to integrate new technologies, enhance our image, and gain warfighter loyalty and confidence.

Most importantly they will help the Regiment provide “world class” communications networks and information services that enable knowledge dominance anywhere and everywhere throughout the full

spectrum of operations.

BG Strong served as Chief of Signal and commanding general of Fort Gordon from July 15, 2005 to July 17, 2007. Strong replaces BG Jeffery W. Foley as the director of Architecture, Operations, Networks and Space, G-6, Office of the Chief Information Officer/G6, U.S. Army, in Washington, D.C.

MAJ Fenton currently serves as the Telecommunications Systems Engineer (FA24) proponent manager in the Office Chief of Signal, Fort Gordon, Ga. Prior to his current assignment he was the Enterprise Systems Management branch chief, Theater Network Operations and Security Center - Korea, responsible for monitoring the faults, configuration, security, and performance of approximately 30,000 Army computer systems on the Korean peninsula. Additional assignments include commander, C Company 307th Signal Battalion, 1st Signal Brigade; Area

Node Platoon leader, C Company, 67th Sig Bn, 93rd Signal Brigade; and company executive officer, B Company, 442nd Signal Battalion.

ACRONYM QUICKSCAN

CND – Computer Network Defense
 CS – Content Staging
 DOTMLPF – Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities
 ESM – Enterprise Systems Management
 EMSO – Electromagnetic Spectrum Operations
 IA – Information Assurance
 IDM – Information Dissemination Management
 IP – Internet Protocol
 IT – Information Technology
 NETOPS – Network Operations
 NM – Network Management
 VI – Visual Information

Signal Core Competencies

in support of

GIG Enterprise Services



By MAJ Russell A. Fenton

The preceding article outlines the new Signal Regiment core competencies (network management/enterprise systems management), information assurance/computer network defense, and information dissemination management/content staging) and how each competency shapes the development of Signal Regiment doctrine, organizations, training, materiel, leadership, personnel, and facilities. In the diagram (Page 6)t, you see how the core competencies facilitate the transition between the *purpose* of the Signal Regiment which is "Communication Networks and Information Services" and the assets or products required to accomplish the *purpose*. At the bottom of the diagram, the

creation, or deployment of assets and capabilities, ultimately produce results—enterprise services.

In today's joint, interagency, and multinational net-centric environment, the Department of Defense's Defense Information Systems Agency provides the overall command, control, and operation of a secure and reliable Global Information Grid across the full spectrum of operations. The GIG is a globally, interconnected, network of networks that support an end-to-end set of information capabilities. The GIG provides interfaces to coalition, allied, and non-DoD users and systems. Although each service (Army, Navy, Air Force, Marines, etc.) installs, operates, and manages its own portion of the GIG, DISA

oversight ensures the interoperability, integration, and standardization of all service's communication networks and information services. The Army's portion of the GIG is referred to as LandWarNet.

DISA has grouped several information services under the DoD Core Enterprise Services umbrella. Core Enterprise Services consist of collaboration, applications, messaging, discovery, mediation, enterprise service management, user assistance, information assurance, and storage. CES ride the GIG's transport capability to provide seamless interaction and knowledge transfer across functional, tactical, institutional, and organizational units. They are the basic, common services that facilitate

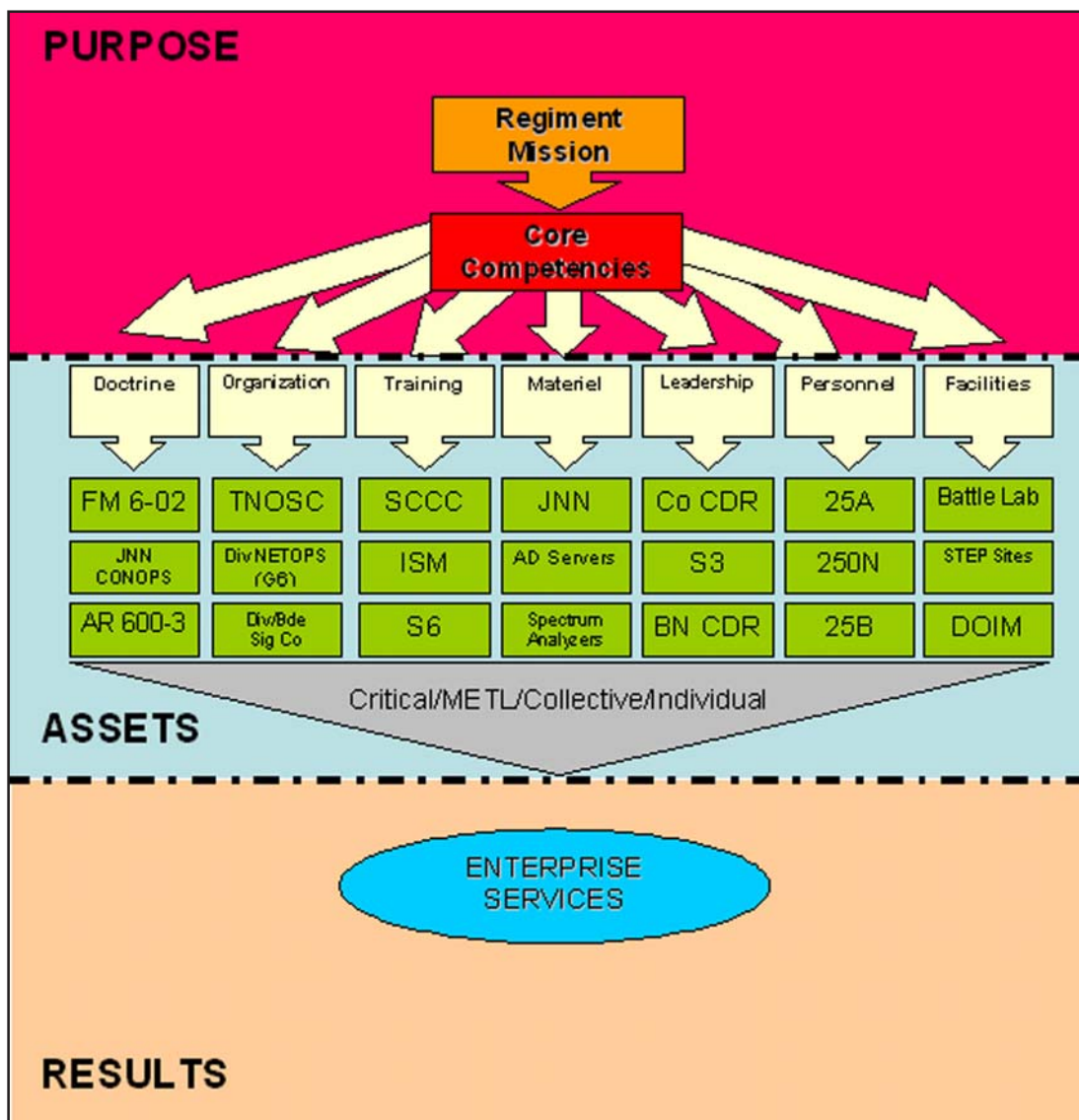
everyday activities. CES is one of the four domains that comprise the DISA's mission of Enterprise Information Environment in DoD's IT Portfolio Governance structure. As part of an integrated team concept, DISA looks to the Army to assist in the creation of these core enterprise services. Subsequently, the Army relies on the DOTMLPF derived from the Signal Regiment core competencies to produce services that meet the DISA standards. In the case of CES, the Signal Regiment uses the IDM/CS core competency to support it.

The other EIE services are additionally supported by the Signal Regiment core competencies: Communications (network management), Computing Infrastructure (enterprise systems management), and Information Assurance (information assurance/computer network defense).

Why is using the Signal Regiment's core competencies to provide CES important to the Army? CES will greatly strengthen the Army's ability to operate in JIM environments. Seamless interaction and knowledge transfer across functional, tactical, institutional, and organizational units promote a joint net-centric information enterprise that enables warfighter and business decision superiority.

MAJ Fenton currently serves as the Telecommunications Systems

Engineer (FA24) proponent manager in the Office Chief of Signal, Fort Gordon, Ga. Prior to his current assignment he was the Enterprise Systems Management branch chief, Theater Network Operations and Security Center - Korea, responsible for monitoring the faults, configuration, security, and performance of approximately 30,000 Army computer systems on the Korean peninsula. Additional assignments include commander, C Company 307th Signal Battalion, 1st Signal Brigade; Area Node Platoon leader, C Company, 67th Sig Bn, 93rd Signal Brigade; and company executive officer, B Company, 442nd Signal Battalion.



ACRONYM QUICKSCAN

CES – Core Enterprise Services
 DISA – Defense Information Systems Agency
 DOTMLPF – doctrine, organizations, training, materiel, leadership, personnel, and facilities
 EIE – Enterprise Information Environment
 GIG – Global Information Grid
 IA/CND – information assurance/computer network defense
 IDM/CS – information dissemination management/content staging
 JIM – joint, interagency, and multinational
 NM/ESM – network management/enterprise systems management

Networks Conference focuses on solutions

BG Randolph Strong, Chief of Signal and Fort Gordon's commanding general addresses the opening session of the 2007 Army Tactical Networks Conference June 25 in Augusta, Ga.



By Tammy Moehlman

The best resolutions come for the issues faced today.

An exchange of information is what drove the 2007 Army Tactical Networks Conference held June 25-28 at the Belair Conference Center in Augusta, Ga.

"The focus is on Army tactical network issues and equipment from division level on down," said LTC Jim Lopez, Headquarters 15th Signal Brigade combat development. Lopez was a key organizer of the conference.

The conference had more than 470 registered attendees, 19 workshops, and six briefings all with the goal of bringing people from across the Army together to talk about the issues and challenges they are experiencing in the field and try to work out solutions for those tribula-

"The focus is on Army tactical network issues and equipment from division level on down," said LTC Jim Lopez, Headquarters 15th Signal Brigade combat development.

tions.

"The new paradigm that we are trying to operate off is to get folks into a conference like this, you exchange the information of what is going on, come up with some of the

best practices and go back out to the field and gets cranked into the school house and we use that to train the young AIT (Advanced Individual Training) Soldiers," said BG Randolph Strong, Chief of Signal Signal Center and Fort Gordon's commanding general.

Strong stressed to attendees the importance of keeping the focus on today, and no more than two years out, saying, "anything beyond two years is obsolete."

In his welcome to conference attendees, Strong listed the Signal Regiment's core competencies of network management and enterprise systems management, information assurance and computer network defense, information dissemination management and content staging, electromagnetic spectrum operations, and visual information.

It was along with these core

competencies that Strong urged attendees to tackle the tough issues and the need to have everyone including the regiment heading in the same direction.

"It's kind of like taking the pulse of the force to see if the initiatives that the Army has implemented are working, and if they are not, to give us the ideas that we can take back up and see if we can fix them, or in some cases, start all over," said Lopez about the conference.

Lopez said the workshops were designed for two way conversations that allow for a sharing of information between the individuals actually facing the challenges. Each workshop had a mediator who collected information on issues being faced and suggested solutions to these problems. It is this collection of information and suggested solutions that will be passed to the commanding general.

Some of the topics discussed at this year's conference that may be presented to the commanding general for review include:

- Verifying policy and procedures for the Internet Protocol address distributions across the LandWarNet.

- What is the best solution for seamless Joint Network Node, Warfighter Information Network-Tactical network architecture? Specifically, what Line-of-Site Transport systems will be used to support the modular force's tactical communications network?

- Network management tools both Joint and Army and what is the best solution forward? Is there a one solution fix for all?

- Spectrum management and educating the force that it is more than just frequency allocations.

- Explore, test, and submit the best ideas for a wireless modular force tactical communications

network solution.

- Work closely with Forces Command and Network Enterprise Technology Command to help synchronize the Global Address List.

It is from these possible items that Signal Center actions may be put forth to bring about resolutions to the challenges facing the warfighter in the field.

"I think the subjects are going to be helpful, because people are starting to understand that there is a slight disconnect between the signal world and other units with the modularity concept which embeds signal in with other teams," said CWO Ozell Bailey, I Corps, Fort Lewis. "This conference is about exchanging knowledge and you don't know that you don't know until someone tells you."

Ms. Moehlman is a staff writer for The Signal newspaper, Office of Public Affairs, Fort Gordon, Ga.

Technological evolution is inevitable

By CPT Julia M. Donley

Doctrine generally goes out the window when faced with operational need. This fact is seen in recent changes to the Operation Iraqi Freedom Network. Requirements are growing; the network is evolving; and tactical and operational base networks are merging. The center of gravity for this effort is the 67th Signal Battalion, Network Enterprise Technology Command representative in Iraq. This article outlines the latest events in the deployed signal community as support is provided to the ever-growing operational need for new technology.

United States Army forces deployed into Iraq in 2003 with signal support units hastily installing their mobile subscriber equipment. The after action reviews that followed spoke of the need for new, mobile, flexible equipment and strongly underlined the limitations of MSE. Senior leadership developed initial plans for what would become Joint Network Node. At the same time, Central Command, Combined Forces Land Component Command and NETCOM began planning for long-term commercial support of the region, using Deployable Ku-band Earth Terminals, Technical Control Facilities and fiber. These two networks, developed to support two different missions, have since grown so close together it is necessary to connect them.

JNN's function is to provide voice and data switching equipment, with direct satellite connectivity to the Global Information Grid in support of a Brigade Combat Team functioning independently or as part of a Joint Task Force. Highly mobile and flexible, JNN is the answer to all of the AAR comments of OIF I. However, since OIF I the technology to assist the commander in defeating the enemy has grown exponentially. These resources include Command Post of the Future, Unmanned Aerial Vehicle, biometrics and other classified intelligence and operational products. All of these systems place serious demands on the tactical network. The latency incurred using all satellite-based systems is too significant to propagate the latest command and control systems. Corps and below units are reluctantly turning to the OIF I and OIF II days of terrestrial line-of-sight links to connect Forward Operating



LTC Michael Plummer inspects the Promina in the newly installed Technical Control Facility at COB Speicher.

Bases and Contingency Operating Bases. Requirements have matured to the point that the theater is ready for a static, high-capacity network.

Those of us managing the operational base network are working as fast as possible to develop the static network necessary to support these requirements. Fourth in line behind 86th, 54th, and 72nd Signal Battalions, 67th Signal Battalion is the NETCOM representative in Iraq, responsible for managing the steady-state network and ensuring rapid commercialization. By the end of our rotation 160th Signal Brigade will be responsible for tech control facilities from Mosul to Basra. As the unit responsible for operational base support, 67th carries on the mission of commercialization: installing fiber rings, installing/updating Area Distribution Nodes, installing/upgrading TCFs, and working with the unit's partners to develop better ways to support the warfighter.

Typically, the operational base unit provides direct



(Left) SPC Virgillio of Charlie Company, 67th Signal Battalion laying conduit for the COB Speicher fiber ring.

(Below) SPC Joe Don Lankford of Delta Company, 67th Signal Battalion, works on fiber connections in the 3rd Infantry Division Headquarters as SPC Terrell Jones looks on.



support to multi-national forces units, as the corps units are supported organically with their tactical equipment. While once it was easy to make such a distinction between “tactical” and “strategic”, today this delineation is difficult and counter-productive. As requirements increase, networks grow together. The natural outcome of this merging of networks is an overlap of C2 lines for communication. Therefore, nearly all projects are a joint effort by what is known as the “Dream Team” which includes members of 160th Signal Brigade, 3rd Signal Brigade, MNF-I Communications and Information Systems Communications and Signals Staff, Multi-National Corps-I C6, 335th Theater Signal Command and 67th Signal Battalion. This collaborative engineering method does not adhere to traditional C2 but is necessary in such a fluid and diverse network.

While JNN serves as the best means to provide mobile support, the static operational base network has become a reliable means to provide support to tactical units in steady-state operations. Units deploy today to a secure base, typically into buildings. When 2nd Brigade, 82nd Airborne Division deployed on short notice to theater, the MNF-I C6 staff and JNCC decided that their support would be strategic primary and tactical

secondary, at least in the short-term. This allowed the unit more time to ready their equipment and personnel, and greater capabilities and flexibility on arrival in theater.

Another example of the changing mission of the operational base network is the recent surge or “plus-up” mission. The short notice deployment and the fact that there was no existing facility to house the 3rd Infantry Division headquarters caused MNF-I and MNC-I to again turn to the 67th Signal Battalion to provide the answer for signal support. We outfitted the area identified for the division with fiber and an ADN and fully installed the building with cable, switches and local area network drops. As the organic signal Soldiers of 3rd Infantry Division finished their pre-deployment training stateside, the echelon above corps signal battalion made sure the division would be ready to engage their mission immediately on arrival. The division was up and running three weeks before all of their equipment arrived in theater.

A scenario in which an operational base signal battalion supports a Brigade Combat Team or lower is

certainly non-doctrinal and rare. However, in the current OIF network, this is becoming a common occurrence. Since we manage a steady-state network, 67th is able to provide the rotational units immediate support and additional resources to ensure their success. What we have developed for the surge units is an unofficial standard operating procedure: provide initial support as they arrive in theater, assist if necessary in developing the JNN network, and finally provide connectivity at the tier-two level between the two networks. The OIF 2006-08 rotation is defined by a hybrid network, connected tactical to strategic at the tier-two level.

The need for this connectivity was driven by requirements at two locations: Speicher and Taji. In the case of Taji, the brigade combat teams were simultaneously using the strategic and tactical Non-secure Internet Protocol Router Network network. Their JNN was set up shooting back to the division headquarters, but they were also making use of the strategic TCF connected



SFC Kelly Stitzel holds a hand made hawk that he constructed to pull 600 pair copper at LSA Anaconda, Iraq.

by satellite and microwave to Victory Base and tier zero locations. In order to best leverage the multiple links, units installed multiple computers on the different LANs. This architecture caused significant delays in sending email from one side of the room to another as it routed through a tier-zero location. The need for direct connectivity to neighboring units on their COB was painfully apparent.

MNF-I CIS, MNC-I C6, 3rd Signal Brigade and 67th Signal Battalion along with Inter-Network Expert contractors worked together to solve this issue. The solution was to install a router between the two networks at the tier-two level using Border Gateway Protocol, routing only within the top level architecture stacks from JNN to strategic. The operational base LAN migrated to open shortest path first and the

tactical local area network remained in Enhanced Interior Gateway Router Protocol. CW4 Curtis McDonald of MNC-I C6 worked with Inter-Network Expert contractors to implement this plan to great effect. The connectivity makes efficient use of the existing fiber ring and allows for future load-balancing, optimization of the network and redundancy.

The other example of a need



New Technical Control Facility at LSA Anaconda.

for direct tactical to strategic connectivity is seen at Speicher. Before it became an enduring location, units installed wireless connectivity, stood up multiple domains and even worked without a domain in some instances. Indeed, the 42nd Infantry Division domain was finally shut down in May 2007, nearly a year and a half after the redeployment of that division. To avoid some of these issues, the incoming division understandably decided to remain entirely on its own tactical network and domain.

After being designated as a COB, the Speicher TCF became a strategic asset and significant improvements were made to the LAN. Recent operational requirements prompted MNF-I and MNC-I to install collaborative intelligence assets on the strategic network, making them available to all multinational divisions and below. In order to effectively leverage these products, the division at Speicher needed direct connectivity to the strategic network for all of their brigades, and many of their battalions.

The division had three choices: full migration to the strategic network and domain, remain segregated from the strategic and incur severe latency or implement a hybrid solution. The hybrid solution is very similar to the one implemented at Taji, but on the Secure Internet Protocol Router Network. This solution takes full advantage of the robust fiber ring installed at Speicher and immediately provides high-speed, low latency connectivity from the division headquarters to all

of its units located on the base.

While the dream team continues to explore methods of extending this capability beyond the borders of the bases, the solution to connect the subscribers located on a given base seems clear. As fiber rings are installed and strategic facilities grow, the ability to connect the operating base and tactical networks gives greater flexibility and capability to the warfighter.

As the network evolves, the natural progression of signal support is toward greater reliance on the static network with connectivity to the rotational tactical equipment. Instead of relying on their own tactical equipment, rotational units now have the luxury of integrating into the existing local theater network, providing instant redundancy to their commanders.

The desired end state is a fiber and microwave based network, with large-scale satellite connectivity to tier-zero locations providing one common domain and high speed low-latency NIPRNET and SIPRNET services to the subscriber. Until the day the operational base network is fully commercialized, the theater must rely on a hybrid solution leveraging all available assets, tactical and strategic.

CPT Donley is the commander of Bravo Company, 67th Signal Battalion, currently deployed to the greater Baghdad area. From August 2003 to May 2007 she served as the chief network planner for the 121st Signal Battalion and then the 67th Signal Battalion. She is currently completing her second tour to OIF.

ACRONYM QUICKSCAN

AAR – After Action Review
 ADN – Area Distribution Node
 BCT – Brigade Combat Team
 BGP – Border Gateway Protocol
 C2 – Command and Control
 C6 – Communications and Signal Staff
 CENTCOM – Central Command
 CFLCC – Combined Forces Land Component Command
 CIS – Communications and Information Systems
 COB – Contingency Operating Base
 CPOF – Command Post of the Future
 DKET – Deployable Ku-Band Earth Terminal
 EAC – Echelons Above Corps
 ECB – Echelons Corps and Below
 EIGRP – Enhanced Interior Gateway Routing Protocol
 FMV – Full Motion Video
 FOB – Forward Operating Base
 GIG – Global Information Grid
 INX – Inter-Network Experts
 JNN – Joint Network Node
 JNCC – Joint Network Operations Control Center
 JTF – Joint Task Force
 LAN – Local Area Network
 MNF-I – Multi-National Forces Iraq
 MNC-I – Multi-National Corps Iraq
 MNF-I CIS – Multi-National Forces Iraq Communications Information Systems
 MSE – Mobile Subscriber Equipment
 NETCOM – Network Enterprise Technology Command
 NIPRNET – Unclassified but Sensitive Internet Protocol Router Network
 OIF – Operation Iraqi Freedom
 OSPF – Open shortest path first
 SIPRNET – Secret Internet Protocol Router Network
 SOP – Standard Operation Procedures
 TCF – Technical Control Facility
 TLA – Top level architecture
 TOC – Tactical Operations Center
 UAV – Unmanned Aerial vehicle

Communications in support of fight to secure Baghdad

By LTC Sylvester Cotton, LTC John Pollock, MAJ Brett Riddle, MAJ Lora Rimmer, and CPT Frank Hauben

"Flexibility and adaptability will be buzz words as we execute the fight to secure Baghdad. We must ensure we are doing everything feasibly possible: command, control, communications, computers, and intelligence-wise, to un-tether commanders from their tactical operations center and allow them to execute their mission in the Baghdad community," said LTC Sylvester Cotton, Multi-National Division – Baghdad G6, at the G6/S6 conference held in February 2007 in his opening statements. This was the first conference of its kind to bring together all brigade combat team/brigade level S6s, MNC-I G6, Corps Signal Brigade commander, MNF-I Chief of Information Services and other key communicators throughout the greater Baghdad area.

When the 1st Cavalry Division was notified for deployment in support of Operation Iraqi Freedom 2006-08, they were instructed to execute a relief-in-place with the 4th Infantry Division (M). There was nothing out of the ordinary about the change over. The irony of the situation came when the unit was told to leave the vast majority of their command and control equipment at home station and fall in on 4ID's equipment. This plan presented several very unique challenges and had never been executed to this extent while a division was in contact.

With only five months remaining till the actual RIP/transfer of authority, the division G6 assembled a command, control, communications, computers, and intelligence planning team to document all the details of the swap. The team was to

look at all items ranging from FM radios to Joint Network Nodes. The first cut of the plan came while 1st Cavalry Division was in the middle of their Mission Readiness Exercise. Every C4I system within the division had been cross walked with 4ID's C4I equipment. This was accomplished to identify compatibility and interoperability issues. Each system was severely scrutinized for hardware, software, and firmware compatibility.

Executing the upper and lower tactical Internet RIP

The final plan required 1st Cavalry Division to deploy with its organic upper tactical Internet equipment, but to fall in on 4th Infantry Division's lower tactical Internet equipment in theater. We received our final "go to war" data product for all of these systems just a few weeks prior to deploying which meant there was little time to upgrade all of the UTI & LTI hard drives prior to the transfer of authority. The G6 determined the highest risk to the UTI & LTI RIP was ensuring the division deployed with the right software on the hard drives. And, once in theater, the units could rapidly as possible upgrade the Force XXI Battle Command, brigade-and-below hard drives in the Theater Provided Equipment platforms.

Each BCT, with the exception of 3BCT 1CD, would receive 4ID's FBCB2 hardware in theater. Our LTI deployment strategy employed a hard drive swap to expedite the upgrade process in theater. This swap was limited to the approximately 1,000 terrestrial FBCB2s within the two divisions. We deployed with their hard drives already loaded with the most recent data product. Once the RIP began, the 4ID units would remove their

hard drives allowing our units to immediately repopulate with the hard drives from home station. The 4ID units would then redeploy with their hard drives and use them in the systems we left at Fort Hood. This strategy did not affect the TPE platforms with Blue Force Tracking versions of FBCB2. Our division was not equipped with BFT kits prior to deployment. The swap strategy did not address the upgrade of A3 Bradleys in theater. They had to be re-imaged in country because there were no compatible hard drives available in Continental United States due to their unique form factor.

To reduce risk while re-imaging, we enlisted the support of the project managers. The units uploaded the removable memory cartridges for the FBCB2 systems in their SEP tanks home station with PM oversight. We turned in our FBCB2 hard drives from the non-embedded platforms (High Mobility Multipurpose Wheeled Vehicles, Operation Desert Storm Bradleys and thin skin armor platforms) to PM FBCB2. The PM verified and shipped the approximately 1,000 FBCB2 hard drives and RMCs to theater.

Units developed plans to re-image the BFTs and TPE hard drives within a two week window. PM FBCB2 supported the units by providing additional hard drive duplicators to increase the throughput.

The swap plan was executed during the left seat/right seat ride. This was high risk because the outgoing units were still executing on going operations. To avoid fratricide and to ensure both 4ID and 1CD icons appeared on a platform's display, we stood up our own enhanced position location and reporting system network in parallel

with the 4th ID's network to allow both sets of terrestrial based FBCB2 systems to function in the same area of operations. Both 4ID and our division maintained a general routing encapsulation "tunnel" between the divisions UTI and the PM's network operation center. This ensured the cross-feed of EPLRS and BFT traffic between the two divisions.

The end state took roughly three weeks to achieve. But when units departed their forward operating base, they were all on the same baseline application and database. They could also transmit limited "C2" data between BFT and EPLRS based FBCB2, which was an Army "first" for the two different types of FBCB2 systems.

The relief-in-place strategy for the Army Battle Command Systems residing on the MND-B's UTI was a straightforward task. It entailed replacing the tactical local area networks in use by the HQ and each 4ID BCT a corresponding 1CD system. However, the task was not without risk. We also had a requirement to re-image our ABCS systems. With assistance from the central technical support facility, we were able to re-image more than 400 ABCS hard drives in time to hand carry the equipment to theater. Once in theater, we set up our own tactical internet, added the ABCS hardware, and removed the 4ID ABCS suite without interrupting the commander's ability to perform his C2 mission. These tasks were executed by representatives from CTSF and the digital PMs. There were no disruptions to ongoing operations, which in the end, was the true measure of success.

Information Systems /Data Services

A big success story for OIF 06/08 is the modular construct which provides each brigade an autonomous communication architecture with both data and network capabilities. The major benefits include enhancing the communications capabilities for the brigade combat team commander and supporting the MNF-I commander's plan to

surge brigades into theater. The construct provides the flexibility and capabilities to stand up data services from any location on the battlefield. The brigade autonomous communications architecture allows communications to keep pace with the brigade's movement in both high intensity conflicts and stationary security operations. The strategic signal infrastructure is incapable of meeting the short-term requirements for remotely dispersed units that are normally isolated because of location and distance from their FOB architecture. The brigade S6 is equipped to plug and play from any location within theater. As BCTs surge into theater, they can have their network and domains operational within hours as opposed to days or weeks.

Modularity has given the BCT commanders more options and overall enhanced the capabilities of the Signal Regiment. Most of the "surge" BCTs have deployed to isolated locations where strategic signal has no footprint. As the mission changes, each BCT can control how they react to change internally and can affect the outcome based on the signal capabilities within their formation. Under modularity, BCT commanders are making strategic decisions that two and three star generals previously made.

The benefits of BCTs autonomous forests/domains have enhanced command and control applications within the unit and division. It provided uninhibited communication for the brigade and division commanders. The unit can now display a common operating picture with significant activities and events viewable at all echelons. The primary tool used by MND-B at the division, brigade, and battalion is command post of the future. CPOF allows the commander at the brigade and battalion echelon within the division AOR to collaborate, share, and synchronize information in almost real time. The CPOF data products include icons that are placed on a map by battle captains and then viewed by other units to gain situational awareness.

MND-B uses CPOF for more than a collaboration tool. It is the command and control tool used by the commanding general. We do not employ another ABCS system that has a two or three star officer sitting behind its screen giving direction and intent. One of the limitations that we were presented with was the number of simultaneous clients the repository can accept. Another was the ability to seamlessly share information between divisions without interrupting service to the current architecture.

3ID Headquarters arrived and we operated both divisions on one repository which contained in excess of 340 accounts. This solution worked well and 3ID benefited from the pre-existing products on the repository. Although the CPOF PM suggested that we do not exceed 200 as the maximum number of clients on the Ventrillo, we developed a plan to establish a Ventrillo server at each brigade. The ability to localize Ventrillo traffic and provide them the capability to manage their own command and control system has enhanced operations and mission communications. The division has established a CPOF web viewer that also allows units to view the common operating picture and significant activities through the SIPRnet. Our current concern with CPOF is the limited number of systems on hand. Commanders and primary staff are the primary recipients which leaves other sections and soldiers without the opportunity to participate in the CPOF experience.

To alleviate the system shortage, we established Adobe Connect (formerly Breeze) servers at the division and brigades. The Adobe Connect server provided the non-CPOF users a forum to host meetings and collaboration sessions remotely throughout theater. MG Joseph Fil, our commander, used Adobe Connect to receive updates on reception, staging, onward movement and Integration from both Fort Hood and Iraq. The users of the server really like the ease of use and understand the choices that are offered through the application.

Each brigade hosts their own Adobe Connect server, which localizes the traffic and ensures the availability of access within their network in case of isolation.

Designing the network

At the division's RIP / transfer of authority, the span of control consisted of approximately 16 JNNs and 39 CPNs, representing eight BCTs in MND-B. Many of the line-of-sight links and all associated equipment had been passed from division to division for the last two Operation Iraqi Freedom rotations. We planned to establish a BCT network over a span of 15 days; in actuality, it only took about five days to integrate their assets. This short turnaround was a credit to the hard working JNN/CPN teams at each brigade that conducted rehearsals, walk throughs, and effective left seat/right seat rides during the RIP process. See Figure 1. (Below) Original MND-B Network.

Network Improvement

Upon inheritance, we focused our efforts on improving the structure and redundancy in the network.

The use of monitoring tools for collecting historical data allowed the NETOPS to determine which links were reliable enough to allow an increase in bandwidth. Since assuming of the network, we have engineered six 8MB links to connect our primary FOBs. We eliminated single points of failure by ensuring that every JNN had a minimum of two additional paths separate from their satellite connectivity. In most cases, fiber connectivity was already incorporated as an alternate communications path. Multiple LOS links per JNN allows flexibility for data flow throughout the network, thereby minimizing bottlenecks and failure points in the network. Since the network had grown slowly over the years, we found that new antenna field analysis was required to correct antennas that were shooting across each other. We reconstructed the placement of some antennas to optimize the antenna field, and to allow flexibility in planning for future links.

Surge of units

The surge plan that's commonly referred to as "Operation

Fardh Al Qanoon" significantly increased the division footprint.

By late January, 2nd Brigade, 82nd Airborne Division had closed on Baghdad. They were closely followed by 4th Brigade 1st Infantry Division, 3rd Brigade, 3rd Infantry Division, 4th Brigade, 2nd Infantry Division and 2nd Brigade, 3rd Infantry Division. We entered each new month with the goal of integrating a new brigade into the network! The surge of a second division headquarters was directed, to correspond with the surge of new brigades and 3ID HQ was deployed to Baghdad as MND-Central. This surge of units in the area resulted in our HUB operating at full capacity, in addition to a couple brigades using adjacent HUBs for services. Prior to MND-C establishment, MND-B consisted of Division Main and 12 brigades.

Our standard for each integrated brigade was to provide the primary JNN FDMA bandwidth of 3088 Mbps and 2048 Mbps for the second JNN. Each BDE primary JNN that supported its headquarters was given a direct LOS link into the DMAIN's JNNs to ensure good communication between the division headquarters and the brigade headquarters. This was especially important for command post of the future's performance on the tactical network, due to its low latency and high bandwidth requirement for quality. In most cases, the brigade also received additional LOS links, connecting them in the LOS network ring for redundant and robust communications. For the surge brigades' arrival, each brigade TOC was fibered and a secondary fiber ring established for each JNTC assemblage locally for intra-brigade connectivity.

The surge of a second division headquarters required a split in the network. The brigades under the command and control of 3ID, also had their network cutover to the 3ID Unit Hub Node. This complex communications cutover involved the complete separation of the two UHN networks. All associated LOS links, Hub links and any fiber

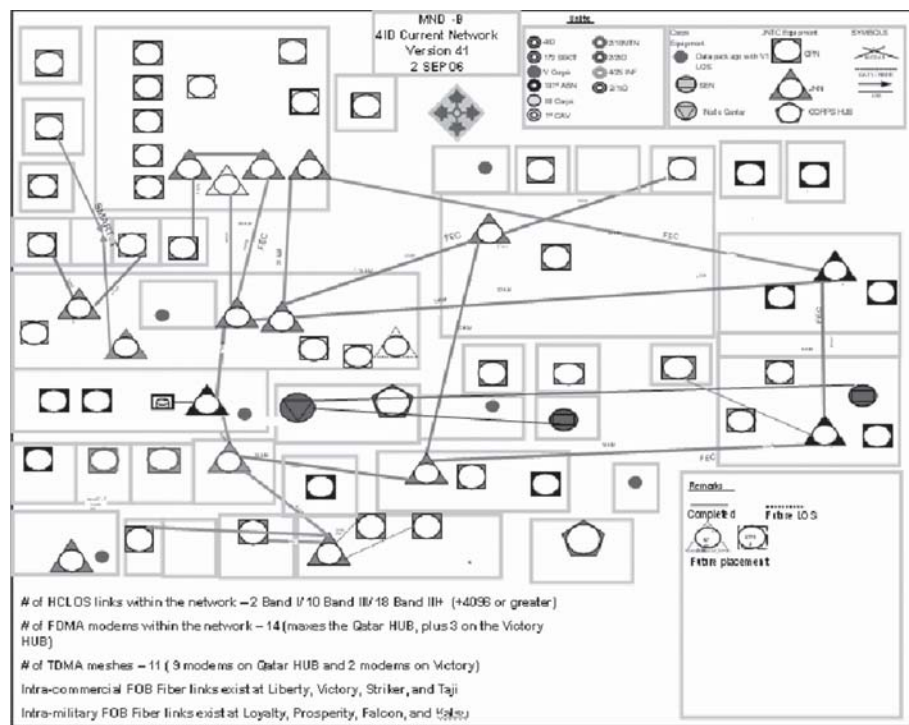


Figure 1. Original MND-B Network

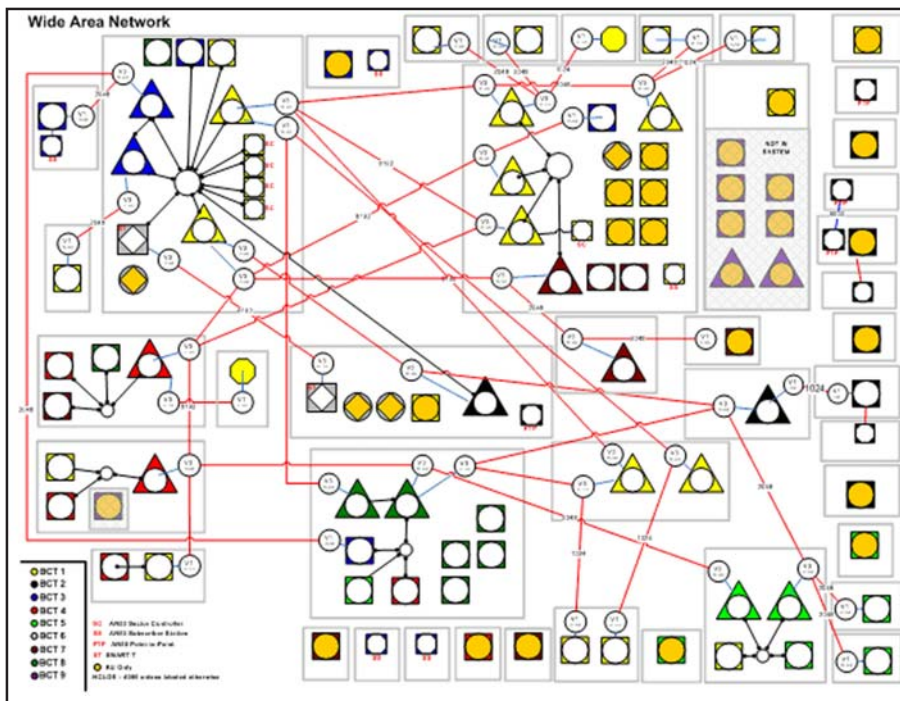


Figure 2. Current Network

connectivity were cut from MND-B and transferred to MND-C. This was to prevent routing loops in the two Tier 2 networks.

Current network

The MND-B network currently covers over 5500km, spanning from Kalsu in the South, to north of Taji. It is the largest, most intricate division tactical network ever assembled, and currently services 10 combat brigades, two support brigades, and a division headquarters with Nonsecure Internet Protocol Router and Secure Internet Protocol Router services. At its peak, the network used two Unit Hub Nodes in order to support the 20 JNNs, and 55 CPNs that were in the MND-B network. The Victory UHN, run by 3rd Signal Brigade, supports four brigade's services, including five JNNs, due to hardware limitations in our UHN.

In addition to using JNTC assets, we rely heavily on additional communications assets. There are 36 LOS links in our network which support the network's redundancy, as well as many inner city outposts and security stations. LOS links are critical to establishing robust and high quality communications in the

demanding tactical environment that is continually bridged to strategic assets. LOS connectivity is also a necessity for back up during bad weather which affects satellite connectivity to the UHN.

Though not part of the JNTC package, the MND-B network has incorporated AN-50s, which are commercial LOS radios which tunnel SIPR through the use of Tactical Local Area Network Encryptor. There are currently 15 sites that are supported through AN-50 radio shots that help us fill the operational requirements in MND-B. These radio systems were initially employed by 4ID and have been continued to be fielded throughout our division. They have been critical in meeting the demands for getting connectivity to various units as they pushed operations into the city. Most AN-50 links extend communications to the Joint Security Stations and Coalition Outposts that are occupied by battalion and below elements. See Figure 2. (Above) Current network.

Managing the network

Our NETOPS cell uses three different monitoring tools to provide continuous data polls of the

network's health and to identify potential problems before they become major issues. This information is critical in managing the network. Our primary user interface for the division NETOPS is Simple Network Management Protocol. This tool provides us with colors representing the status of each assemblage and the network links between the assemblages. The SNMPc monitoring tool polls IP addresses of network assemblages to determine their operating status. Green represents an 'up' status, with red representing 'down'. Yellow and purple represent the link status in initialize and exchange, respectively indicating a 'hit' on the link, or cycling of the network. Red dots and lines are to be avoided at all costs. The SNMPc is the most viewed of all monitoring tools in the network.

Solarwinds is also a heavily used tool that assists us with network monitoring. Like SNMPc, Solarwinds polls devices in the network to determine their status. Solarwinds, however, is able to provide more in-depth information and historical analysis tools. Network controllers use this program for multiple means. A customized interface error report displays the errors taken during each hour. Bandwidth use, response time, packet loss, and interface error reports can be customized for historical data charts showing critical trends that help us troubleshoot and aid in our effort to continually improve the network. We use Solarwinds as the primary means for detailed analysis of link quality beyond the "up" or "down" status provided by the SNMPc program used on the network.

Our third tool is the network analysis module, which is designed to break down and analyze the traffic on the network. This is useful in seeing the kind of traffic that is being supported by the tactical network and the IPs that are drawing the most bandwidth. It can therefore be used to find offenders of large file downloads that pull too much bandwidth.

Aside from software, the

NETOPS depends heavily on conference calls to conduct business. All brigade NETOPS and JNNs call into a conference daily during the division's battle update assessments and commander's update assessments, to ensure that we can reach all assemblages at a moments notice. This helps ensure communications aren't interrupted during these essential times. We also use conferences to conduct weekly S6 meetings that keep all MND-B signal officers abreast of any issues or major changes that are coming within the MND-B signal community. Lastly, conference calls are used during monthly COMSEC changeovers, to ensure all units "take all directions from the tower" when COMSEC is changed.

With the help of these various network monitoring tools, the NETOPS is often aware of outages before the parent unit notices a degradation of service. "Green" dots and lines are not enough to ensure success; healthy links are the overarching goal of the network controllers as they strive to provide the most effective service possible.

Supporting the Military Transition Teams, Special Police Transition Teams, and National Police Transition Teams

Transition teams are a crucial component of the plan to train and mentor Iraqi Forces to take control of the security situation in Iraq. These teams spend a great deal of time with their Iraqi counterparts and often live on Iraqi FOBs away from the typical U.S. support structure available on Coalition Force FOBs. The Multi-National Division – Baghdad controls over 100 transition teams at 27 different locations across our area of responsibility. These small teams present a unique challenge to the signal community in our efforts to extend secure and non-secure data and voice services to each and every transition team in our AOR.

When we arrived in Baghdad and relieved the 4ID, we inherited a robust network which had extensions to every transition team FOB,

and in 90 percent of the cases the teams could access data and voice from their own tactical operations centers. However, the surge in Coalition Forces in Baghdad has also brought in a surge of Iraqi forces and their partnered Transition Teams. The limited housing capacity on the inhabited FOBs in Baghdad forced these new units to base at new FOBs that had no existing communications structure. Our challenge was to reposition our JNTC and commercial line-of-sight assets to these new FOBs to meet the new communications requirements.

With this extension of our wide-area network, we still could not grant all requests for data access. We screened out transition teams' requests for service by mandating that each team or group of teams must maintain a 24 x 7 operations center to ensure the physical and information security of on-site communications equipment. We also mandated that battalion teams must co-locate and share communications resources with their brigade teams in a combined TOC.

While our initial focus was on providing data access to each and every TOC, we now realize that we cannot sustain that type of network access in an environment where units surge in and move around. We have shifted to an internet-café type of solution, where we place SIPR/NIPR ports at one transition team and other transition teams living nearby have to travel to that café to access data. These guidelines have allowed us to continue providing data services to all of our transition teams.

Joint Security Stations/Coalition Out Posts

The Multi-National Division Baghdad became the focal point for integrating and extending NIPR/SIPR data services down to Joint Security Stations and Coalition Outposts. These are squad/platoon/company sized elements, lead by lieutenants and captains. This is a total paradigm shift from the way the signal community originally structured the JNTC support

architecture. Dedicated communications support was never expected to go below battalion level. To meet the commander's intent of providing secure communications support to JSS/COPs, units moved their computers and phones from the JNTC network to the fiber infrastructure. This freed up CPNs to support the JSS/COP communications requirements. This solution has proven effective for the short term but the current trend of JSS/COP growth will outpace the availability of JNTC assets in theater.

Baghdad is divided up into ten security districts with a combination of JSSs and COPs in each district. A key component of the current Baghdad security plan is the placement – rather than the projection – of forces at JSSs and COPs within these local municipalities. The forward placement of forces, however, has generated new requirements to provide SIPR, NIPR, and voice over Internet Protocol access to commanders and intelligence personnel at these remote sites.

The Baghdad security plan initially started off with 30 total JSSs and COPs in the Multi-National Division – Baghdad AOR. Over the past four months, the number of JSSs and COPs in MND-B has exploded to over 75 locations. We do not have the requirement to push data over long distances that other MNDs in Iraq have, we do have the issue of pushing data to these dozens of remote sites which do not have an inherent communications capability. The requests for data at these locations have caused us to drastically alter the focus of our communications planning.

To date, we have extended communications or have assets identified to extend communications to 44 forward locations in our AOR. Through all this, we still maintain assets providing data to BCT and battalion TOCs on our eight main bases. While we still have a shortfall of over 30 locations, we have already pushed well past the doctrinal limits of our signal assets.

We continue to work with our BCTs to cross-level equipment and source new solutions with the existing equipment that we have.

LTC Cotton, LTC Pollock, MAJ Riddle, MAJ Rimmer and CPT Hauben are all currently assigned to Multinational Division-Baghdad/1st Cavalry Division where they work in the G6 section on Camp Liberty, Iraq. LTC Cotton is the division G6 and was previously assigned as the USFK J6 operations division chief. LTC Pollock is the program executive office LNO assigned to 1st Cavalry Division. MAJ Riddle is the division automation management officer and was previously assigned as a brigade S6. MAJ Rimmer is the network operations officer in charge and has held the same position with 4th Infantry Division. CPT Hauben is the G6 plans officer and was previously assigned as a battalion S6.

ACRONYM QUICKSCAN

1CD - 1st Cavalry Division	JNTC - Joint Network Transport Capability
4ID - 4th Infantry Division	JSS - Joint Security Stations
ABCS - Army Battle Command Systems	LAN - Local Area Network
AO - Area of Operation	LNO - Liaison Officer
AOR - Area of Responsibility	LOS - Line-of-Sight
BCT - Brigade Combat Team	LTI - Lower Tactical Internet
BFT - Blue Force Tracking	MiTT - Military Transition Teams
BUA - Battle Update Assessment	MND - Multi-National Division
C2 - Command and Control	MND-B - Multi-National Division - Baghdad
C4I - Command, Control, Communications, Computers, and Intelligence	MRE - Mission Readiness Exercise
CIS - Chief of Information Systems	NETOPS - Network Operations
COMSEC - Communications Security	NIPR - Non-secure Internet Protocol
CONUS - Continental United States	NOC - Network Operation Center
COP - Coalition Out Posts	NPTT - National Police Transition Teams
CPOF - Command Post of the Future	ODS - Operation Desert Storm
CTSF - Central Technical Support Facility	OIF - Operation Iraqi Freedom
CUA - Commander's Update Assessments	PM - Project Manager
DMAIN - Division Main Command Post	RIP - Relief in Place
EPLRS - Enhanced Position Location and Reporting System	RMC - Removable Memory Cartridges
FBCB2 - Force XXI Battle Command, Brigade-and-Below	RSOI - Reception, Staging, Onward Movement, and Integration
FDMA - Frequency Division Multiple Access	SIGACTS - Significant Activities
FOB - Forward Operating Base	SIGO - Signal Officer
GRE - General Routing Encapsulation	SIPR - Secure Internet Protocol
HMMWV - High Mobility Multipurpose Wheeled Vehicle (aka humvee or hummer)	SNMPc - Simple Network Management Protocol
HQ - Headquarters	SPTT - Special Police Transition Teams
ID - Infantry Division	TACLANE - Tactical Local Area Network Encryptor
JNN - Joint Network Node	TOA - Transfer of Authority
	TOC - Tactical Operations Centers
	TPE - Theater Provided Equipment
	UHN - Unit Hub Node
	USFK - United States Forces Korea
	UTI - Upper Tactical Internet



Army seeks Spectrum Operations Soldiers

By Dale Manion

On Jan. 22, 2007, the Department of Army approved the establishment of Military Occupational Specialty 25E, Electromagnetic Spectrum Manager, and ASI S9, Joint Spectrum Manager, in a Notification of Future Change (NOFC E-0704-04) to Department of the Army Pam 611-21. The Global War on Terrorism has clearly highlighted the need for a dedicated military occupational specialty to satisfy the Army's Spectrum Operations requirements. This new MOS will authorize Soldiers from staff sergeant to sergeant major with the ASI S9 only associated with the SFC-SGM ranks. Human Resources Command plans to begin reclassification into this MOS May 1, 2007. Soldiers interested now in being considered for reclassification into this dynamic, demanding, and dedicated MOS should read below and apply now.

Soldiers who meet the prerequisites for MOS 25E may reenlist for reclassification into MOS 25E or submit a voluntary request for reclassification into MOS 25E by submitting a DA Form 4187 (Personnel Action) through their chain of command. See points of contact at bottom of this article. Approval of request for reclassification into MOS 25E will be directed by the Commander, Human Resources Command, United States Army Reserve Command, National Guard Bureau or other authorized reclassification authority as appropriate. Soldiers in the rank of sergeant first class and above who currently possess ASI D9, Battlefield Spectrum Management, will be given first consideration for reclassification to 25E SFC, master sergeant, and sergeant major.

Based on the needs of the Army, Soldiers in the rank of staff sergeant, who meet the following

prerequisites, are eligible for in-service accession into MOS 25E30:

- (a) Basic Non-commissioned Officer Course graduate from MOS 25C, 25F, 25L, 25N, 25Q, 25P, 25S, or 25U.
 - (b) Less than 10 years in service (Active Component only).
 - (c) Minimum score of 105 in aptitude areas General Technical and Electronics.
 - (d) Possess a SECRET security clearance and are eligible to receive a TOP SECRET security clearance.
 - (e) Normal color vision.
 - (f) A physical profile of 222221.
 - (g) A physical demands rating of medium.
 - (h) Ability to read, comprehend, and clearly enunciate English.
 - (i) A U.S. citizen.
- Soldiers who are currently awarded ASI D9 are potential reclassification candidates for award of MOS 25E and ASI S9, if they meet the following criteria:

Active Component:

- (a) Basic Non-commissioned Officer Course graduate.
- (b) ASI D9 trained and/or served in a spectrum management position within the last 24 months.
- (c) Possess a SECRET clearance and be eligible for a TOP SECRET clearance.
- (d) Soldiers meeting the prerequisites, having served in a joint spectrum position within the last two years, and selected for this MOS by HRC will be awarded MOS 25E and ASI S9.

Reserve Component:

Soldiers who have been awarded ASI D9 and are currently serving in an ASI D9 position will be reclassified to MOS 25E. Soldiers who have been awarded ASI D9 but

are not currently serving in an ASI D9 position may be reclassified to MOS 25E based on needs of the command as determined by NGB, HRC-St. Louis, USARC or other authorized reclassification authority. Soldiers must meet security clearance requirements for SECRET and TOP SECRET clearances. Soldiers identified for reclassification to MOS 25E who have served in a Joint spectrum position within the last two years will also be awarded ASI S9.

For more information contact: Signal Branch, HRC, Professional Development Non-commissioned Officer MSG Jennifer Valdes; email: jennifer.Valderrano@us.army.mil; phone DSN 221-5583. If you wish to become a 25E, send email to Valdes. She will keep you posted as reclassification details are finalized. Office Chief of Signal, Signal Center, MOS 25E Career Manager, SFC Mike Russell; email: mike.e.russell@us.army.mil; DSN 780-8192.

Mr. Manion is a Force Integration Specialist with the Office Chief of Signal, Fort Gordon, Ga.

ACRONYM QUICKSCAN

ASI – Additional Skill Identifier
BNOC – Basic Non-commissioned Officer Course
DA – Department of the Army
GWOT – Global War on Terrorism
HRC – Human Resources Command
MOS – Military Occupational Specialty
MSG – master sergeant
NCO – Non-commissioned Officer
NGB – National Guard Bureau
NOFC – Notification of Future Change
POC – point of contact
SFC – sergeant first class
SGM – sergeant major
SSG – staff sergeant
USARC – United States Army Reserve Command

Signal Support Company and its relationship with Brigade Special Troops Battalion

By CPT Rett B. Burroughs

With the transformation of a Light Infantry Brigade to an Infantry Brigade Combat Team come many changes. One of those changes is the signal support company assigned to support that Infantry Brigade Combat Team.

As there is no longer a division signal battalion to command and control, the signal company finds itself in a Special Troops Battalion along side an engineer company and a military intelligence company and being led by a non-signal battalion commander. There are pros and cons to this current design and I would like to discuss how the 3rd Infantry Brigade Combat Team, 25th Infantry Division has adapted to ensure mission success.

With the absence of a signal battalion commander, the signal company commander must work closely with the special troops battalion commander, all the while working closely with the brigade S6 and division G6 to ensure the shot gets through.

Building relationships and understanding the flow of information is critical to success. Often, the orders process impedes communication success as the requirements of the brigade commander may get lost in translation as it trickles through a chain of command which is not familiar with signal vernacular or may not get through the orders process in a timely manner. This is where a quality relationship with the

Working alongside engineers and military intelligence allows the signal company to see a much larger view of the battlefield.

brigade S6 is critical. However, it can cause consternation between all parties involved. Nevertheless, having open lines of communication can ensure mission success. The brigade S6 and the signal company can work together to get the network operational while ensuring the battalion is informed so it can support the company to achieve the end state.

At the start of transformation, the special troops battalion did not understand the equipment of the signal company and their capabilities or their requirements to support the brigade.

As the company commander worked with the battalion executive officer and battalion operations officer, an understanding of systems and their capabilities developed greatly improving the cohesiveness of the battalion/company relationship.

Now the battalion commander understands the communications requirements of the brigade while the company understands the

requirements of the battalion.

The company commander must focus not only on the network but also commanding the company, a responsibility not only to the Soldiers but also to the battalion.

The positive aspects of having a signal company in a special troops battalion far outweigh the negative points. Working alongside engineers and military intelligence allows the signal company to see a much larger view of the battlefield.

Cross talk and coordination with these other key units allows the signal company commander many options to accomplish the mission. From falling in on an engineer route clearance mission to a similar location to supporting intelligence gathering missions at key locations about the battlefield, the signal company can ensure mission success in areas that were once void of signal influence, creating a "One Team, One Fight" paradigm.

This model, along with a true grasp of the special troops battalion commander's intent and understanding that the signal Soldiers are truly the subject matter experts of all things "signal" will ensure success for quality communications across the brigade battle space.

CPT Rett Burroughs is the company commander of Charlie company, 3rd Brigade Special Troops Battalion, 3rd Infantry Brigade Combat Team, 25th Infantry Division serving at Forward Operating Base Warrior in Kirkuk, Iraq.

S-6 101:

Keys to success for battalion S-6

By CPT Howard M. Smyth

Battalion signal officers throughout the Army are significantly challenged during their rotation at the Joint Readiness Training Center. Most signal officers fight to develop a concept of command and control to ensure their unit achieves mission success. Signal officers also fight through issues internally (within their war fighting function, and their unit). Some issues are overcome by the time the unit reaches "Endex", but some are not. The two areas that consistently impair the signal officer's success are the Military Decision Making Process and Staff Coordination/Synchronization. A signal officer mastering issues associated with these items will be successful at JRTC and deployment. You must be a good planner first, which means not only understanding how all of information systems work, but how many are ready to be used.

Mission analysis (asset visibility)

An S-6 has to have an accurate picture of assets available before starting any planning. Determining assets available is probably the most critical point in mission analysis for the S-6. You need to know who is in your organization and what assets they own. The units that struggle the most are the ones where no previous system was developed, followed by units that just don't track to the necessary level of detail, ie: they track end items but not the ancillary equipment like antennas, power supplies, power amplifiers, and battery chargers. It's critical to track these systems because they affect employing your end items. For example, if you obtain a 25K dedicated Satellite Communication segment and have 40 PRC-148

(multi-band) radios in the unit, but only have four SATCOM antennas. The limiting factor is no longer the number of radios you have but the number of antennas.

Ideally there is already some tracking mechanism like an excel spreadsheet that you use to maintain visibility of all C2 assets. Assuming that is true, the sheet must be updated as often as possible, especially as your task organization changes to include units that are not organic to your organization, ie: Special Forces Operational Detachments, Tactical Human Intelligence Teams, Joint Tactical Air Controllers, Military Training Teams, Civil Affairs Teams, etc. (Figure 1) Often these units are resourced with robust communication packages.

Additionally there must be consistent reporting from the communications sergeants in each company to the S-6 to in order to validate the tracking sheet and ensure optimum utility. This is the first instance where staff coordination is critical because if shortages in equipment or training are identified you should coordinate with the battalion executive officer, brigade S-6, and/or a sister battalion S-6 to request support for these issues.

PACE development

Most importantly, accurate asset visibility allows development of the primary, alternate, contingency, and emergency PACE communications plan from higher to lower. This will crystallize the focus for the communications exercise. It also enables recommendations to be made quickly to the commander on redistributing assets as the mission changes. For example, if one company needs another power supply to operate an additional frequency modulated net for an upcoming

operation and is located on the same forward operating base with the battalion tactical command post that has an extra power supply. In such an instance you'd already have the information available to arm the S-3 to direct the equipment transfer. Valuable time wouldn't be spent to obtain equipment numbers from other units and coordinate logistics to transport equipment from the battalion FOB, or another unit's location.

COMMEX

Once the PACE has been established a plan must be developed for the battalion COMMEX. This is the second instance where inadequate planning causes an issue for the S-6. A successful COMMEX includes a formal plan that is understood by the battalion tactical operations center and all subordinate units. Write the COMMEX plan and issue it in the form of a fragmentary order. This is another instance where staff coordination is critical, because by coordinating with the S-3 to issue the plan in a FRAGO you ensure visibility by the TOC (commander, XO, S-3 and other staff sections), companies, and other units in the task organization. Further ensure success by reviewing the plan for the COMMEX in any updates that are conducted within the battalion up until the point of execution. Additionally, a meeting should be coordinated with all communicators within the battalion, specifically the 25U located at the company level to ensure their preparation and understanding. Ideally this meeting is also addressed in the COMMEX FRAGO to ensure that all company 25Us are available. Finally, ensure participation by tracking the results of the COMMEX and providing a formal

roll up of the results to the battalion XO. The roll up can be a single slide that depicts the overall results, participation issues, and maintenance issues. Upon completion of the COMMEX a clear idea of system readiness should be the result.

Course of action

Upon completion of MA the S-6 must begin to develop a C2 plan to support the battalion concept of operations. The current trend is for the battalion to develop a course of action that not only has phases which occur chronologically, but simultaneously, along lines of operation, such as security, governance, and economics. Regardless of how the plan unfolds, the most important product for the S-6 to develop during this phase of MDMP is the concept of C2 plan that integrates the PACE plan, and the establishment of critical C2 nodes (Retransmission teams and the battalion Tactical Command Post) into the concept of operations and the scheme of maneuver. Recognizing the fact that all units in the task organization may not have the same allocation of C2 assets, address not only changes to the PACE during different phases, but the different PACE plans for different units. For example, if one company does not have a tactical satellite radio for a phase of the operation then their primary means of communication for long-haul communications may be Blue Force Tracker or high frequency systems. Again, having clear asset visibility facilitates flexibility in support of a feasible plan.

Operations order

The final phase of MDMP and another consistent source of friction is the OPORD. In preparation for the written OPORD, develop several products in the form of the signal annex. The goal of the signal annex should be to develop a clear and articulate plan that can be understood at the lowest levels, including as much detail as possible. At the very minimum you need to address the following issues in the OPORD:

COMMS Tracker (updated as of 21JUN06)

Fully Mission Capable On Hand	FOB Alpha										FOB Bravo					FOB Charlie					TOTAL	NOTES (# in system, # NMC (Status, Maintenance, training))
	TOC	JTAC	TNT	CA	TPT	HHC	ACD	BCO	RETRANS	TAC	CCO	DCO	ECO	EOO		TAC	CCO	DCO	ECO	EOO		
PRC-117 / PSC-5	2	2	1	1	1	0	0	1	0	1	0	0	0	0	9						9	Training Scheduled next week for 4 per at BDE S-6 shop. Currently have 1 TAC/SAT per FOB
ACJ Adapter for PRC-117 / PSC-5	1	2	0	0	0	0	0	1	0	1	0	0	0	0	5						5	need 4 more to have 1 in each company cp.
High Gain	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1						1	Coordinate with JTAC, # necessary for AC Adapter
Med Gain	2	2	1	1	1	0	0	1	0	1	0	0	0	0	9						9	Require 2 total TOC/JTAC
ASIPS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2						2	need 1 per company, verify with 25U at next meeting
PPE224	8	2	0	3	0	24	25	21	6	4	23	37	48	2	293						293	
OE254	2	2	0	2	1	3	1	1	1	1	1	1	1	1	18						18	require 2 more total to have one in each company CP
COM201	2	2	0	2	1	3	1	1	1	1	1	1	1	1	18						18	need to get one for every PL vehicle, RETRANS has one spare antenna
PRC-150	2	1	1	1	1	5	0	0	0	1	0	0	0	0	12						12	pull from HHC as necessary
HF Antenna	2	1	1	1	1	4	0	0	0	1	0	0	0	0	11						11	NVIS Status? Green in maintenance for 1 week
BFT	2	1	1	1	1	5	0	0	0	1	0	0	0	0	12						12	Contractor visit to each FOB on Tuesday starting at 0900
BFT TOC Kit	1	0	0	0	0	2	2	2	0	1	3	2	1	0	14						14	
Sat Phone (Thoraga)	1	0	0	0	0	0	0	1	0	1	1	1	1	0	6						6	Need to order the longer display cable for TOC
Sat Phone Base St'n	3	0	1	1	0	1	1	1	0	1	1	1	0	1	12						12	
MBTR	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1						1	Order 1 per Company CP
YSAT	0	0	0	0	0	17	11	7	0	0	10	11	0	0	56						56	
NIPRI	0	0	0	0	0	17	12	8	0	0	12	12	0	0	61						61	
SIPRI	1	0	0	0	0	9	0	0	0	0	0	0	1	0	2						2	can hook up 5 more NIPRI in TOC
VOIP	10	0	0	0	0	3	0	0	0	2	0	0	10	0	25						25	
ICOM	15	0	0	0	0	3	0	0	0	2	0	0	10	0	30						30	
ICOM Charger	20	0	0	0	0	23	0	0	0	0	0	0	0	0	43						43	
ZSU	25	0	0	0	0	23	0	0	0	0	0	0	0	0	48						48	
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6						6	
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8						8	2 VOIP not hooked up to conserve bandwidth
	5	1	0	3	0	18	34	34	2	2	65	23	0	0	189						189	Need 8 more per company to meet 2 per squad, CA and D CO radio in maintenance, ECO on order
	5	1	0	4	0	18	34	34	2	2	65	25	12	0	203						203	
	1	0	0	0	0	2	3	1	1	1	1	1	1	0	12						12	
	1	0	0	0	0	3	3	1	1	1	1	1	1	0	13						13	
	2	0	0	0	0	6	1	1	2	0	1	1	0	0	14						14	D CO cover down on E CO, C CO cover down on the TAC
	2	0	0	0	0	6	1	1	2	1	1	1	1	0	16						16	

Figure1.

- PACE by phase
- Communications card
- FM line-of-sight analysis
- COMSEC compromise
- Iraqi Security Forces communications
- Medical Evacuation communications plan
- Use of Sheriff's net
- Adjacent unit coordination.

Some of these items should be addressed in the base OPORD under tasks to subordinate units or coordinating instructions, while others should be covered under paragraph five and in the signal annex. One of the common mistakes signal officers make is putting tasks to subordinate unit's reference communications matters in their signal annex, when they should actually be published under the task to subordinates section of the base OPORD. Again, the goal of the signal annex is to keep it as simple as possible while addressing all issues.

The next issue associated with the OPORD is that even if the S-6 develops an articulate plan he doesn't get to brief it, or is limited to a single slide. It is then up to the S-6 to coordinate with the battalion executive officer to ensure he acknowledges what communications

matters are necessary to brief. This is where it is critical to maintain a working relationship with the XO. Once the XO acknowledges your need to brief, and the possibility of briefing more than a single slide, don't waste everyone's time in the OPORD by talking about something that seems trivial to them like Army Battle Command System Internet Protocol addresses. Remember who you are briefing in the OPORD. Simplicity is the key. The bottom line is address all critical issues. Later point out what wasn't addressed but is covered in the written OPORD. The signal officers who are most successful at JRTC brief: the PACE, location of key C2 nodes, the FM LOS analysis, and adjacent unit coordination. Regardless of whether or not everything you want is briefed, it is imperative to review the signal annex with all the 25U in the organization.

Combined arms rehearsal

The CAR is the final preparation event at the battalion level. The S-6 and the C2 WFF are routinely absent from the rehearsal. The CAR is similar to the OPORD in terms of the requirement to coordinate with the S-3 and the XO before hand to

COMDEX ROLL UP SLIDE for Battalion XO								
UNIT	System Tested				Participation 100%	5988 updated	Parts on Order	COMMENTS
	FM	TACSAT	HF	BFT				
TOC	8	2	2	1	Y	Y	BFT Display cable	received FIPR message from each company on BFT. Good job recording results.
	8	2	2	1				
TAC	4	1	1	1	Y	Y	N	Next time ensure operators who are deploying with the TAC make radio checks
	4	1	1	1				
HHC	24	0	1	2	Y	Y	N	Signed over HF to each company during COMDEX
	24	0	1	2				
A CO	25	0	1	1	Not on FM	N	N	Require refresher training on HF and SATCOM
	26	0	1	2				
B CO	21	1	1	1	Y	Y	5 vehicle whip	Require refresher training on HF and SATCOM
	27	1	1	2				
C CO	23	0	1	1	Y	Y	N	Require refresher training on HF and SATCOM
	23	0	1	3				
D CO	35	0	1	1	Y	Y	N	Require refresher training on HF and SATCOM
	37	0	1	2				
E CO	48	0	0	1	Y	Y	N	Require refresher training on HF and SATCOM
	48	0	0	1				
RETRANS	6	0	0	0	Y	Y	N	RETRANS deployed 15K from TOC to verify PA in each company
	6	0	0	0				

Overall Assessment: A Co did not participate in FM portion of COMDEX. Contractor visit scheduled for BFT repair next Tuesday. Companies need more SATCOM training. 5988 have been updated by each unit except for A CO.

Figure1.

ensure that C2 is addressed during the CAR. Ideally, actions that are rehearsed will address the PACE within the framework of the loss of communications procedures.

Staff synchronization

The next major item that impairs S-6 success is synchronization within the C2 WFF and synchronization with the rest of the staff. Information flow in both of these areas is critical.

Most of the synchronization issues within the staff are overcome by one-on-one interaction and meetings. Ideally the battalion XO forces the staff to get together at least once a day to work out any issues. In the absence of such a venue, the S-6 must make the effort to interact with the other staff members and companies to resolve issues relating the C2 and optimally prevent issues before they occur. Additionally you have a responsibility to maintain situational awareness and read the entire battalion OPORD, brigade OPORD and subsequent FRAGOs. Too many staff officers only read the annex or section of an OPORD that pertains to their WFF.

Below are some of the items that should be addressed with the other staff sections during planning and steady state operations.

S1: Establishment of the Administration and Logistics FM net, incoming personnel

S2: ABCS establishment (All Source Analysis System), establishment of the Operations and Intelli-

gence FM net, Intelligence Surveillance and Reconnaissance feeds

S3: TOC set up, ABCS establishment (Maneuver Control System-Light), Combat Net Radio establishment (FM, SATCOM, HF), Web Portal establishment, input for FRAGOs, calendar updates (COMDEX, training), Requests For Information, TAC readiness / deployment

S4: Property book visibility & distribution of assets, funding for training and equipment, establishment of the A&L net and the Administration and Logistics Operations Center

FSO: ABCS establishment (Advanced Field Artillery Tactical Data System), establishment of the battalion and brigade Fires nets

XO: Support and guidance on all communications matters affecting the battalion, assistance working matters with the companies, other WFF, and the brigade S-6

WFF synchronization

The S-6 also needs to develop a plan to synchronize the S-6 section. This includes the 25U located within the battalion S-6 shop and the 25U located in each company. The deployment of the 25U to the company level greatly enhances the S-6's visibility of issues at that level and facilitates bottom up refinement of the C2 plan and operations. It is important to ensure that the expectations for the company 25U are clear. There should be a clear understanding between you, the company XO and the 25U with respect to what

their responsibilities are within the company. The communications sergeant is expected to assist with all C2 matters within the company and similarly expect the time, resources, and authority within the company to execute.

Synchronization with the companies is directly tied to the S-6 shop. The first thing the S-6 can do to ensure synchronization within the C2 WFF is to establish venues for the exchange of information. Ideally, the S-6 conducts a shift change brief within his section, participates in the TOC shift change brief, develops priorities of work, and a battle rhythm. The battle rhythm should include daily and weekly meetings with the company 25U, based on the locations of personnel. The intent is to share information and while it is recommended to try and formalize the process, there is nothing wrong with just sitting down and discussing issues. However, the units that make the most of the opportunities to talk to each other directly, have created a clear agenda and pushed it out to everyone and least a day in advance. This ensures they know what is going to be discussed and are prepared to address all issues in detail. Recommended issues to cover within the C2 WFF:

- Asset visibility / communications status
- PACE acknowledgement
- Maintenance
- Training and support
- Command Post establishment
- Current and future operations

The last part of the WFF synchronization is between the battalion S-6 and the brigade S-6. Ideally the brigade S-6 establishes at least the same venues for the exchange of information between the brigade and the battalion that you created for information flow between the battalion and the companies. Even though you are probably located on different FOBs, the proliferation of digital collaboration systems such as Command Post of the Future and Breeze enable the ability to conduct an S-6 conference call. This is routinely how informa-

tion is exchanged between S-6s during JRTC rotations. But again, in the absence of such a meeting it is critical to talk to the brigade S-6 daily in order to address the following items:

- RFIs
- Current and future operations
- Communications support (training, technical, equipment and maintenance)

Conclusion

The battalion is the first level where the Army recognizes there is a need for a staff, so the battalion S-6 is clearly the closest to the fight and in position to make the greatest impact. Planning and support of the war fighter are crucial. It is important to be proactive and a successful member of the staff. This means not only mastering the skills associated with your WFF, and developing the necessary tools and products to support the mission, but also understanding how to leverage the C2 WFF and the other members of the staff in support of the C2 plan.

CPT Smyth currently serves as a battalion S-6 observer / controller at the JRTC. He has also served in several S-6 positions during his career. He deployed with 1st Battalion, 187 Infantry Regiment to Afghanistan and Pakistan in November 2001 in support of Operation Enduring Freedom. His next assignment was to the 101st Airborne Division G-6 where he served as the division radio officer and acted as the G-6 in the division assault command post during Operation Iraqi Freedom 1. He also served with 1st Squadron, 3rd Armored Cavalry Regiment where he deployed to Iraq in support of OIF 3.

ACRONYM QUICKSCAN

25U – Signal Support Systems Specialist	JTAC – Joint tactical Air Controller
ABCS – Army Battle Command System	LOS – Line-of-Sight
AFATDS – Advanced Field Artillery Tactical Data System	MA – Mission Analysis
ASAS – All Source Analysis System	MCS-L – Maneuver Control System -Light
ALOC – Administrative Logistics Operations Center	MDMP – Military Decision Making Process
A&L – Administrative and Logistics (net)	MEDEVAC – Medical Evacuation
BFT – Blue Force Tracker	MTT – Military training team
C2 – Command and Control	ODA – Operational Detachment Alpha
CAR – Combined Arms Rehearsal	OIF – Operation Iraqi Freedom
CNR – Combat Net Radio	O&I – Operations and Intelligence (net)
COMDEX – Communications Exercise	OPORD – Operations Order
COMSEC – Communications Security	PACE – Primary Alternate Contingency Emergency
CP – Command Post	RETRANS – Retransmission
CPOF – Command Post of the Future	RFI – Request For information
ENDEX – End Exercise	S-1 – Administration
FM – Frequency Modulated	S-2 – Intelligence
FOB – Forward Operating Base	S-3 – Operations
FRAGO – Fragmentary Order	S-4 – Logistics
HF – High Frequency	S-6 – Signal
IP – Internet Protocol	SATCOM – Satellite Communications
IS – Information System	TAC – Tactical Command Post
ISF – Iraqi Security Forces	TACSAT – Tactical Satellite
ISR – Intelligence, Surveillance, and Reconnaissance	TOC – Tactical Operations Center
JRTC – Joint Readiness Training Center	THT – Tactical Human Intelligence Team
	WFF – War Fighting Function
	XO- Executive Officer

Same command center experts supporting EUCOM are helping AFRICOM stand down new COCOM command center

By Stephen Larsen

KELLEY BARRACKS, Stuttgart, Germany – Recognizing the strategic and economic importance of Africa, President Bush, on Feb. 7, 2007, directed the U.S. military to establish a new combatant command, the U.S. Africa Command.

AFRICOM's mission is to promote U.S. national security objectives by working with African nations and regional organizations to strengthen the region's stability and will focus on building the capacity of the U.S. African partners to reduce conflict, improve security, defeat terrorists and support crisis response.

AFRICOM's area of responsibility will include all African nations except Egypt, plus the islands surrounding Africa – an area including about 35 percent of the world's land mass and 25 percent of its population. This AOR is currently divided between three combatant commands: the U.S. European Command, the U.S. Central Command and the U.S. Pacific Command – a division which Secretary of Defense Robert Gates told the Senate Armed Services Committee was "an outdated arrangement left over from the Cold War."

"This command (AFRICOM) will enable us to have a more effective and integrated approach than the current arrangement," said Gates.

Rear Adm. Robert Moeller, head of the AFRICOM transition team, said AFRICOM will establish an initial operational capability at Kelley Barracks, Stuttgart, Germany by October 2007 with a full operational capability at Kelley Barracks by October 2008. Currently, the AFRICOM transition team is laying



Shown here is the U.S. European Command's Joint Operations Center, at which IVIS (the Integrated Visual Information System) can distribute audio and video onto the large screens and to 26 workstation computers. SSG Charles Johnson, an IVIS operator at the EUCOM JOC, said going from EUCOM's prior system to IVIS was "like going from a Volkswagen to a Ferrari. Before, there were 137 steps to set up a briefing – now there's one button to push."



Eight different video images from Integrated Visual Information System are shown here on the screens in the General Matthew Ridgway Conference Room at the U.S. European Command headquarters, Patch Barracks, Stuttgart, Germany.

out the plans for the command and forming the core of the headquarters staff at Kelley Barracks.

"We've got a lot of work to do to think our way through that here over the next several months," said Moeller.

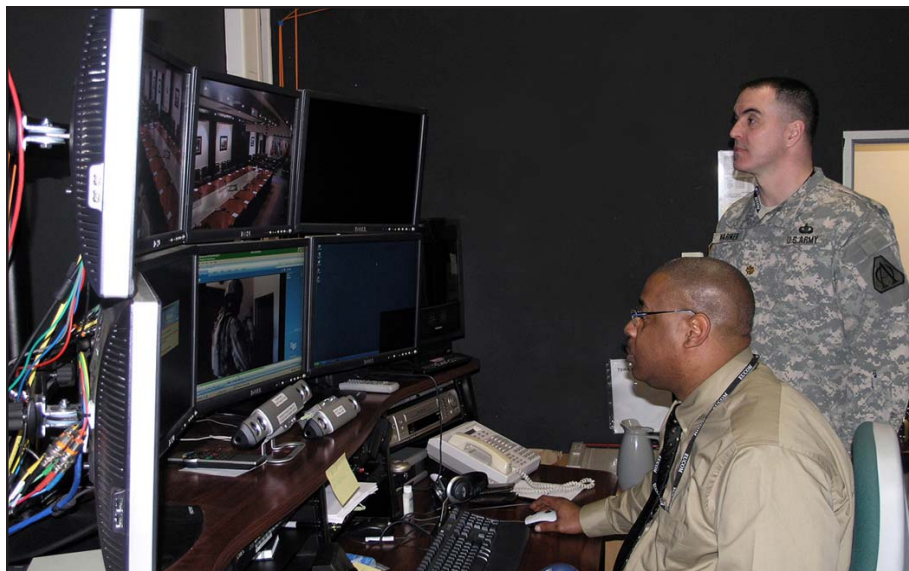
Assisting the AFRICOM transition team in capturing its requirements for command center information systems at Kelley Barracks is the Theater Systems Integration Office-Europe, part of the Project Manager, Defense Communications and Army Transmission Systems' Command Center Upgrades/Special Projects Office. TSIO-E, located at Patch Barracks, Stuttgart, about five miles from Kelley Barracks, has provided command center information systems for EUCOM at Patch Barracks, CENTCOM in Qatar, Bagram Air Force Base, Afghanistan and the U.S. embassy in Kabul, Afghanistan.

"I consider TSIO-E part of my staff, even though I don't write their evaluations," said COL David Barlow, the EUCOM J67. "They provide an essential part of our capability to support the communications and information technology infrastructure requirements of EUCOM and AFRICOM."

According to MAJ Tim Warner, TSIO-E's Deputy Assistant Project Manager, TSIO-E is perfectly positioned to assist AFRICOM in standing up its command center.

"We (TSIO-E) have been successfully supporting EUCOM – an existing, mature COCOM – and we know the types of systems, communications requirements and security related to command center information systems," said Warner at his office at Patch Barracks, where TSIO-E is virtually embedded in the EUCOM staff. "We know what's out there at the other COCOMs and in industry, and we've given EUCOM the most advanced solution available. We look forward to assisting AFRICOM in the requirements development, design and installation that meets those requirements."

Multiple security levels on one IT backbone



In the control room of the General Matthew Ridgway Conference Room at the U.S. European Command headquarters, Patch Barracks, Stuttgart, Germany, MAJ Tim Warner (right) of the Theater Systems Integration Office-Europe watches as Armond Williams of the EUCOM staff decides which signal feeds are needed for the upcoming conference.

The EUCOM solution Warner is referring to is called IVIS – the Integrated Visual Information System – which TSIO-E provided in conjunction with engineers from the U.S. Army Information Systems Engineering Command. IVIS includes an integrated briefing support system and audio/video (A/V) distribution system. The briefing support system allows for the generation, presentation and recording of A/V material and the A/V distribution system delivers the material to locations throughout the EUCOM J-Mall (Joint-Mall) campus at Patch Barracks.

What sets IVIS apart from the pack, said Warner, is its ability to send and receive TS/SCI (Top Secret/Sensitive Compartmented Information) and unclassified information on the same system, at the same time to multiple locations.

"IVIS has brought multi-level security to a visual information system, greatly enhancing the information presentation capabilities of the EPOC (EUCOM Plans and Operations Center)," said Col. David Barlow, the EUCOM J67. "At the same time, IVIS is a reliable and operator-friendly system – which

means we can actually use it every day."

Warner explained that IVIS uses control software that securely routes audio and video signals from the desired source to desired destinations with no unwanted deviations in signal routing, adding that the IVIS control and routing system interrogates the room security level set by the user and permits only the appropriate security level signals to be passed to the room.

Because IVIS is a customized solution, it offers several advantages to EUCOM over an outright commercial-off-the-shelf solution, Warner said.

"For one thing, IVIS is DIA-accredited (Defense Intelligence Agency), COTS solutions are not," said Warner. He added that IVIS' user interface is customizable to users' requirements while COTS user interfaces are limited by the vendor's design solution and that IVIS allows unlimited software modifications at users' requests vs. limited modifications possible with COTS.

At EUCOM's Joint Operations Center (JOC), MAJ Richard McClintock of the EUCOM J6 staff ran IVIS through its paces, showing

off its capabilities.

"In this room, the nine screens can be 'quadded' (divided into images from four different inputs) with maps, the common operating picture, briefing slides, CNN, BBC, VTCs (video teleconferences) – whatever we need," said McClintock. "And at the 63 workstations, 26 computers can view IVIS. This saves us unnecessary staff review time and allows us to mix security levels on the fly."

SSG Charles Johnson, an IVIS operator at the EUCOM JOC, said going from EUCOM's prior system to IVIS was "like going from a Volkswagen to a Ferrari."

"I don't think I'd want to go back," said Johnson, "the system we had before IVIS was prehistoric compared to this. Before, there were 137 steps to set up a briefing – now there's one button to push. IVIS makes the NCOs' (non-commissioned officer) jobs simpler, it has a huge amount of power and saves us a lot of work."

Now, building on the success of the IVIS implementation at Patch Barracks, TSIO-E is working with the AFRICOM transition team to help them through the steps towards achieving their own command center information system capability. However, due to the accelerated schedule, with IOC redlined to only eight months after the President directed the establishment of AFRICOM, steps must be taken concurrently. A case in point: The engineering design charette – intense consultation session between the design team and all stakeholders – is being conducted concurrently with mission analysis.

"We are in the midst of a multi-disciplinary charette process which is marrying the customers requirements – in this case, the command's transition team requirements – with the realm of the possible from the Army Corps of Engineers, the Garrison, the components and certainly all the other various stakeholders here on Kelley Barracks," said LTC Bob Watson, AFRICOM's Deputy J6 and transition team leader for C3.

John Forsyth, the Theater Systems Integration Office-Europe's project officer for the U.S. Africa Command command center, points out features of buildings that AFRICOM will occupy at Kelley Barracks – a string of three-story A-frame buildings that were constructed in 1934 as German army cavalry barracks, which look like they haven't changed much since then.



Forsyth is pleased to find plastic pipes in the basement of one of the buildings AFRICOM will occupy at Kelley Barracks – a string of three-story A-frame buildings that were constructed in 1934 as German army cavalry barracks. "These look like they may come from that building across the way," Forsyth said. "Maybe we'll be able to pull some cable through here and save some costs."



John Forsyth, TSIO-E's project officer for the AFRICOM command center and a former Army Ranger who served as the U.S. Special Operations Command Europe's J6 for six-plus years after 9/11, has been working diligently with AFRICOM operations planners to help them all go down the right paths.

Watson said that TSIO-E is helping AFRICOM staffers to define and structure requirements in a way that is executable and supportable, in both the near-term, as well as posturing for future growth opportunities. "Certainly their (TSIO-E's) abilities to pull together the multi-disciplinary team that is required for such an effort are significant," said Watson.

Standing up a new Combatant Command

"AFRICOM is the 11th beast, there are other COCOMs out there, now this new one is standing on these wobbly legs and figuring out how to walk," said Forsyth. "We've been spreading the word, like a mantra, that all comms requirements

are ops-driven. As far as TSIO-E goes, logically we step in after they've done their mission analysis – meaning after they've developed a good mission profile and a Joint Manning Document. Here, there is no time."

A saving grace, said Forsyth, is that in the 1990s TSIO-E provided some minimal comms infrastructure for EUCOM at Kelley Barracks, including a Joint Task Force stand up facility and an EUCOM alternate Command Center – which can serve as the AFRICOM Operations Center on interim basis until they can stand up their own.

During a walk-through inspection of the buildings that AFRICOM will occupy at Kelley Barracks – a string of three-story A-frame buildings that were constructed in 1934 as German army cavalry barracks, and look like they haven't changed much since then – it was clear that a lot would need to be done to make these building habitable as office space, let alone office space with modern IT infrastructure.

"You can see how bleak these buildings are," said Forsyth. "Luck-



At Patch Barracks, Stuttgart, Germany, MAJ Tim Warner (left) of the Theater Systems Integration Office-Europe and MAJ Richard McClintock of the U.S. European Command J6 staff discuss plans to further distribute audio and video throughout the EUCOM J-Mall (Joint-Mall) campus using, IVIS – the Integrated Visual Information System – which can send and receive TS/SCI (Top Secret/Sensitive Compartmented Information) and unclassified information on the same system at the same time.

ily, we were involved early in the process and were able to influence that they didn't try to put too many people in here and that they took into account riser space and space for server rooms and other IT (information technology) infrastructure."

He was pleased when, in the basement of one of the buildings, he came across four approximately five-inch plastic pipes aligned at the bottom of an exterior wall.

"These look like they may come from that building across the way," Forsyth said. "Maybe we'll be able to pull some cable through here and save some costs."

Forsyth added they were also trying to save costs by developing a holistic design taking into account the whole while looking at the parts. "We can save money by having some IT work done under construction," he said. "For instance, it's more efficient to have the construction guys, rather than the IT guys, install PDS (protected distribution system) hardened carrier."

Forsyth said much of the

requirements analysis, including mission refinement and extrapolation of sub-elements, will be done by TSIO-E and their industry partner, Science Applications International Corporation. David Hust, SAIC's TSIO-E program manager, said his firm is gearing up for the effort. "We're interviewing and hiring folks that have skill sets and experience in command center information systems," Hust said.

Warner and Forsyth said that TSIO-E is also gearing up, lining up contracts, engineering support from ISEC and additional project officers.

Regardless, the timelines are being driven by the IOC and FOC dates. "The most important thing for TSIO-E is to meet AFRICOM specifications and implied requirements within their timeframes," said Forsyth.

While admitting that accelerated the timeline makes it a challenge to ensure TSIO-E can provide AFRICOM command center systems and architecture that will support their mission requirements while the details of the mission are still being

worked out, Warner saw a great opportunity inherent in the challenge.

"COCOMs just don't stand up every day – when was the last time?" asked Warner. "This may be the very first time that the Army Acquisition Corps has had any involvement in the establishment of a COCOM. This will be a great opportunity for the Army Acquisition Corps to show its capability."

Mr. Larsen is a public affairs officer with Program Executive Office, Enterprise Information Systems, Fort Monmouth, N.J.

ACRONYM QUICKSCAN

AFRICOM – Africa Command
 AOR – area of responsibility
 CCU/SPO – Command Center Upgrades/Special Projects Office
 CENTCOM – Central Command
 COCOM – combatant command
 COTS – commercial-off-the-shelf
 EUCOM – European Command
 FOC – full operational capability
 IOC – an initial operational capability
 IT – information technology
 IVIS – Integrated Visual Information System
 JOC – Joint Operations Center
 PACOM – Pacific Command
 PM DCATS – Project Manager, Defense Communications and Army Transmission Systems
 SAIC – Science Applications International Corporation
 SOCEUR – Special Operations Command Europe
 TSIO-E – Theater Systems Integration Office-Europe

LandWarNet

Update from LandWarNet e-University for the Signal Regiment

KNOWLEDGE MANAGEMENT

EFFORTS EXPANDED AT LANDWARNet eUNIVERSITY

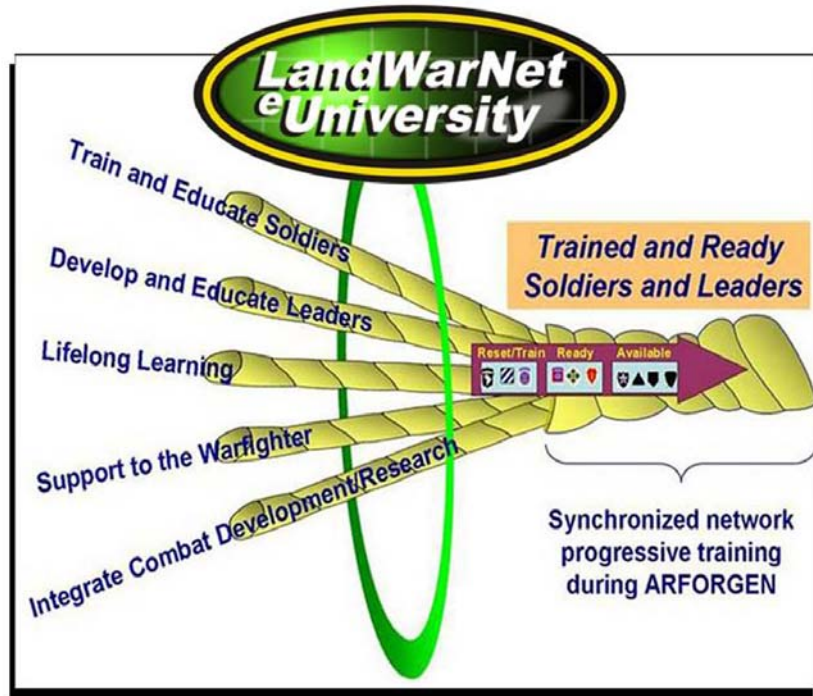
By LandWarNet e-University staff

The Signal Center continues to offer expanded training capabilities to units at any point in the Army Force Generation cycle. We offer anytime, anywhere on demand training for multiple training requirements. Also, through the use of a variety of new equipment based simulations, LandWarNet eUniversity offers the opportunity to train on some of the latest equipment being fielded.

Unit universities now offer custom pre-deployment training for rotating units

The LandWarNet eUniversity Extension Campus has greatly expanded its outreach program for deploying units. The extension campus coordinator will work with gaining units and commanders to create custom unit universities to support site specific training requirements. Currently, there are more than 30 unit universities on the extension campus that provide sustainment training on signal military occupational specialties, information technology, and communications equipment to Active, Guard, Reserve, and Joint services.

Recent unit university additions to the LWN-eU Extension Campus include: 35th Signal Brigade, 112th Signal Battalion, 36th Signal Battalion, 529th Signal Company, 101st Sustainment Brigade, 310th and 316th Expeditionary Sustainment Commands. Unit universities can deliver training that cannot be obtained locally to forces in ARFORGEN reset, sustainment, or deployed in theaters of operation. Individual Soldiers can access their unit university anywhere they can connect to the Internet.



Unit universities are created and hosted on the Blackboard Learning Content Management System. This system has built-in features that provide commanders and training managers the tools and ability to monitor, track, and assess training at the unit or individual Soldier level using the checks for learning developed by the unit. Unit universities give commanders and Soldiers a single location for accessing training developed by the Signal Center.

Examples of training content that can be immediately loaded onto a unit university range from installing, operating, and maintaining a Joint Network Node to navigate using the Defense Advanced Global Positioning System Receiver. All of the training content comes from the same program of instruction used for resident courses at Fort Gordon.

Also readily available on unit universities is quick access to professional forums and more than 500 downloadable products, interactive multimedia instruction, and computer-based training programs.

Recent and popular downloads include: AN/TSC-156A Phoenix simulator, local area network/wide area network simulator, Force XXI Battle Command, Brigade-and-Below simulation, and single-channelled ground to air radio systems multimedia instruction. For more information on, or to request a unit university, contact Floyd Orial, LWN-eU Signal Extension Campus coordinator, (contractor - General Dynamics Information Technology), floyd.orial@us.army.mil, DSN 780-2571 or commercial (706) 791-2571.

State-of-the-art support for Army Force Generation

Interactive multimedia instruction greatly enhances and standardizes instruction for AC and RC units throughout the force when self development, sustainment, refresher and remedial training are conducted. The following virtual/PC-based simulators are available or will be made available via LandWarNet eU



(<https://lwn.army.mil>) and LandWarNet eU Signal (<https://lwneusignal.army.mil>) web portals to facilitate communications equipment operations training:

Fielded SIMS

1. LAN/WAN
Fielded: April 2007
Target Audience: 25B, C, F, L, P, Q, S, U, W, 250N, 251A, 53A, 25A LT/CPT
2. Phoenix (Version A)
Fielded: April 2007
Target Audience: 25S
3. SATCOM Hub (S 5-7)
Fielded: March 2007
Target Audience: 25S
4. Baseband Hub (S 2-4)
Fielded: February 2006
Target Audience: 25N
5. JNN (S 1)
Fielded: October 2005
Target Audience: 25N
6. BN-CPN (S 1)
Fielded: October 2005
Target Audience: 25B
7. KU (S 1)
Fielded: October 2005
Target Audience: 25Q
8. DTOC
Fielded: October 2005
Target Audience: 25B
9. TIMS (ISYSCON)
Fielded: October 2005
Target Audience: 25B
10. HCLOS
Fielded: October 2005
Target Audience: 25Q

11. GSC-52
Fielded: January 2004
Target Audience: 25S
12. BSN
Fielded: October 2004
Target Audience: 25F, Q, P
13. FBCB2
Fielded: October 2003
Target Audience: 25U
14. TRC-173
Fielded: November 2001
Target Audience: 25P, Q
15. 85/93
Target Audience: 25S

New SIMS under development: Fiscal years 2008-2009

Single Shelter Switch (V3)
Final Delivery: April 2008
Target Audience: 25N, 25F

Nodal Network
Projected fielding: September

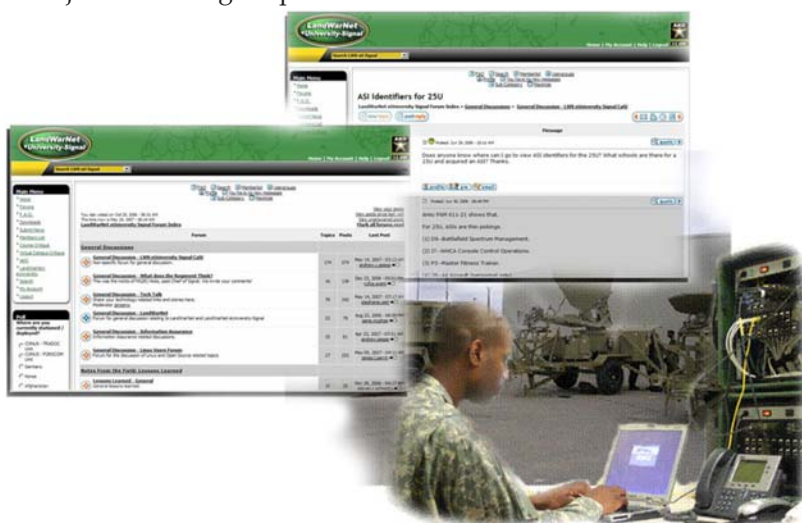
2009

Target Audience: 25N, 25B, 25Q, 25S

For more information on the status of interactive courseware and virtual/PC-based simulator training products, contact Bennita Freeman, chief, Distance Education Branch at DSN 780-2303 or MAJ Chuck Dugle, chief, Simulations Branch at DSN 780-8681 or commercial at (706) 791-8681.

ACRONYM QUICKSCAN

ARFORGEN – Army Force Generation
BCKS – Battle Command Knowledge System
DAGR – Defense Advanced GPS Receiver
FBCB2 – Force XXI Battle Command, Brigade-and-Below
FY – fiscal year
GPS – global positioning system
ICW – Interactive Courseware
LAN – local area network
LWN-eU – LandWarNet eUniversity
MOS – military occupational specialties
SCCC – Signal Captains Career Course
SIMS – simulations
SINGARS – single-channel ground to air radio systems
SSS – single shelter switch
TRADOC – Training and Doctrine Command
UIT – University of Information Technology
WAN – wide area network



Doctrine update

Updates in Signal doctrine from Directorate of Combat Developments, Army Signal Center, Fort Gordon, Ga.

NETWORK SERVICE CENTER-REGIONAL: NOT A PLACE

By COL (Ret.) Geoffrey Wells and Thieleman Martin

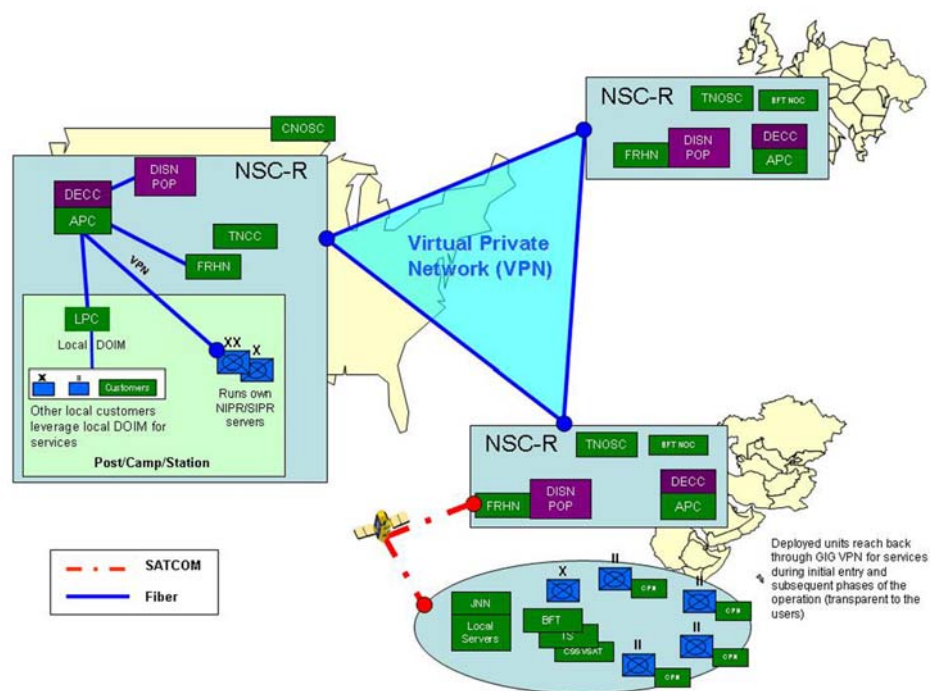
Network Service Center-Regional: It's a name you'll hear a lot as the LandWarNet concept evolves. But don't go looking for a street address or a building number, because an NSC-R is not a place; it's a capability derived by combining the capabilities of several regional facilities, and it will change the way units deploy and fight in the future.

Operations in Afghanistan and Iraq showed the Army's mobile subscriber equipment and tri-service tactical communication systems could not keep pace with fast-moving combat forces, and lacked the capacity to handle the growth in data traffic.

To meet the Army's immediate needs, the Joint Network Node was introduced. Designed to provide a bridge from terrestrial-based systems to the Warfighter Information Network-Tactical, the JNN and its companion Command Post Node primarily employ satellite communication links to enable rapid access to network services as forces maneuver. Using commercial off-the-shelf technologies, the JNN-Network architecture brings internet protocol capabilities to warfighting operations, and dramatically increases the capacity for moving data at every echelon.

Essential to the JNN-N architecture are hub nodes, which connect JNN-N users to the Army LWN and the Global Information Grid. The original architecture called for two hub nodes in each division, but a later decision reduced the number to one hub node per division and established a requirement for five fixed regional hub nodes to provide network connectivity around the globe to deploying forces.

As the FRHN concept matured,



NSC-Rs will enable units — corps, divisions, independent brigade combat teams, and support units — to deploy rapidly without requiring the advanced deployment of an organic hub node.

it became apparent that these regional facilities could serve as platforms for hosting servers and applications for deploying tactical users, enhancing the ability of forces to rapidly move into an area of operation and enter the fight. By establishing virtual private network links with home station facilities, and combining the capabilities of regional information and network operations services, the concept of a full-service regional network service center took form.

In its simplest form, a network service center exists anywhere network transport, information, and NETOPS facilities combine, either physically or virtually, to support a network user. At a regional level,

those capabilities are provided by a FRHN, one or more area processing centers, and a Theater Network Operations and Security Center. These facilities work together to provide a broad range of network services to deployed forces. By seamlessly connecting units to home station facilities, processing centers, and other information resources, the capabilities of a full-service network service center-regional will be realized.

NSC-Rs will enable units — corps, divisions, independent brigade combat teams, and support units — to deploy rapidly without requiring the advanced deployment of an organic hub node. Network services will be available as soon as

units establish a link to the servicing NSC R. The NSC-R's FRHN will provide a fixed platform in sanctuary at which user servers and applications can be hosted, giving warfighters immediate access to battle command and other key services.

Units engaged in reception, staging, onward movement, and integration activities will be able to immediately obtain network services through NSC-R facilities. NSC-Rs will support continuity of operation when supported units' command posts are relocating, and NSC-R capabilities will serve as a vital backup in the event a unit's organic systems fail.

NSC-R associated facilities will be positioned to provide near-global coverage. The current plan calls for five FRHNs; three in overseas locations, and two in the U.S. mobile/tactical hub nodes will be available to extend network services to units deployed outside the coverage of the fixed facilities.

APCs will consolidate information services and complement Global Information Grid and Department of Defense computing infrastructures by hosting Army servers that support a variety of functional communities of interest. Where possible, APCs will collocate with Defense Enterprise Computing Centers to take advantage of their high-speed GIG-Bandwidth Expansion wide-area network access. APCs will enhance reach-back capability for deployed forces while improving the ability to defend the network.

NETOPS functions will be provided by the TNOSC and by capabilities integral to the FRHN. These functions, which include Global Enterprise Management, Global Content Management, and Global Network Defense, will be conducted in concert with network

operations and security centers associated with joint, theater army, corps, division, and brigade organizations.

As they become operational, NSC-Rs will offer deploying forces "always on" points of entry to the

As they become operational, NSC-Rs will offer deploying forces "always on" points of entry to the Army's LandWarNet and the GIG.

Army's LandWarNet and the GIG. They will give warfighters immediate access to pre-positioned battle command and common user services, and to home station capabilities.

They will facilitate maneuver and the relocation of command posts, and provide a vital backup capability for units' organic systems. And while they support the ability to conduct near-term operations, NSC-Rs will provide a foundation to support the transformation from the current "federation of networks" to WIN-T and a fully integrated LandWarNet paradigm.

COL (Ret.) Wells, the former TRADOC Systems Manager for the Mobile Subscriber Equipment system, works for Janus Research Group, Inc. supporting the Concepts Section of the Signal Center's Capabilities Development and Integration Directorate.

Mr. Martin works for Janus Research Group, Inc. in support of the Doctrine Section of the Signal Center's Capabilities Development and Integration Directorate.

ACRONYM QUICKSCAN

APC – Area Processing Centers
 BE – Bandwidth Expansion
 COI – communities of interest
 COOP – continuity of operation
 CPN – Command Post Node
 DECC – Defense Enterprise Computing Centers
 DoD – Department of Defense
 FRHN – fixed regional hub nodes
 GCM – Global Content Management
 GEM – Global Enterprise Management
 GIG – Global Information Grid
 GIG-BE – Global Information Grid-Bandwidth Expansion
 GND – Global Content Management
 IP – Internet Protocol
 JNN-N – JNN-network
 LWN – LandWarNet
 LWN-U – LandWarNet-University
 JNN – Joint Network Node
 MSE – Mobile Subscriber Equipment
 NETOPS – network operations
 NOSC – network operations and security centers
 NSC-R – Network Service Center-Regional
 RSOI – Reception, Staging, Onward Movement, and Integration
 TNOSC – Theater Network Operations and Security Center
 TRI-TAC – Tri-Service Tactical
 WAN – wide-area network
 WIN-T – Warfighter Information Network-Tactical

TCM update

Updates from Training and Doctrine Command capabilities managers for networks and services including satellite communications, tactical radio and Warfighter Information Network-Tactical

TCM-TR

JOINT TACTICAL RADIO SYSTEM GROUND MOBILE RADIO

By LTC Bill Mason

Information dominance at the tactical battle edge has long been the viewed as one of the critical force multipliers of militaries seeking to give their respective forces an overwhelming tactical advantage in every situation. From Lee's lack of information at Gettysburg to the inability of command and control assets to rapidly pass information to forces on the ground in Somalia, United States military history is replete with examples where the lack of real-time information influenced the battle. The U.S. military's search for a product that provides information dominance at the tactical battle edge is yielding results as the restructured Joint Tactical Radio System's Ground Mobile Radios product line begins phase two of its development life cycle. This phase of GMR's development cycle includes field experimentation, development of production representative GMR systems, and formal field testing.

The GMR product will drastically alter the current capability landscape at the tactical battle edge. With the GMR, the individual Soldier will have access to simultaneous video, data and voice information via the concurrent operation of multiple channels (each of which can be set at a different classification level if the mission requires) on a single GMR set. Additionally, the GMR will provide warfighters with multi-channel routing and retransmission via four channels of same classification voice and data routing and retransmission.

The warfighter will have the option to use multiple configurations of six different waveforms that can be preloaded on the GMR. The waveforms include the new Wideband Networking Waveform, the new Soldier Radio Waveform, the Enhanced Position Location Reporting System Waveform, the Single Channel Ground Air Radio System Waveform, the High Frequency Waveform and the Ultra High Frequency Satellite Communications Waveform. The WNW and the SRW will provide the warfighter with scaleable networking services via their capability to be reconfigured and inter-networked.

WNW and SRW provide standards based interoperability. This gives the warfighter the ability to extend the information network in a dynamic and ad-hoc manner. GMR, via four channels capable of routing and retransmitting information, will solve the frustrating and sometimes deadly failure of legacy communications devices to interoperate. The WNW and the SRW are IP-based networking waveforms and will therefore support all user traffic allowing voice, video, and data to be passed in both secure and non-secure modes.

The GMR employs an open systems architecture that is modular, scaleable and flexible. GMR is a Software Communications Architecture compliant system in which all waveform attributes are programmable. The GMR system consists of multiple Line Replaceable Units which are partitioned to maximize flexibility for the warfighter.

The programmable nature of this software defined radio combined with the flexible LRU design make the GMR a highly reconfigurable radio in the operating environment. The GMR radio will provide the warfighter with full

spectrum coverage in the 2 MHz to 2 GHz range. Finally, the GMR will support connection to the Global Information Grid and will provide Quality of Service protocols via the WNW and the SRW. The GMR will deliver information dominance to the battle's edge.

The JTRS GMR (originally JTRS Cluster 1) contract was awarded to an industry team led by Boeing in 2002. The first of many JTRS programs which would later follow, the Cluster 1 program's goal was high technology software and hardware development to produce a highly capable, transformational communications system for the Department of Defense.

Software and hardware integration challenges and emerging GIG-based security certification concerns plagued the Cluster 1 program and resulted in schedule delays and cost overruns. In early 2005 the Undersecretary of Defense for Acquisition, Technology and Logistics ordered a partial Stop Work on the Cluster 1 program, appointed a Joint Program Executive Officer for the JTRS Enterprise, aligned all existing JTRS programs under the JTRS JPEO, directed the JTRS JPEO to conduct an assessment of all JTRS programs (Cluster 1, Cluster 2, Cluster 5, AMF, and MIDS-J) and directed the JPEO to provide a recommendation for realignment of all JTRS programs to deliver an achievable and affordable product to the Department of Defense.

The JPEO's assessment resulted in numerous recommendations, including narrowing and focusing all JTRS requirements to provide prioritized capabilities to the DoD, developing a revolutionary JTRS Enterprise business model which allows the government and industry to team in order to develop and use the best technology for software

defined radios while encouraging a diverse industrial base to compete for hardware production business, and streamlining the sometimes burdensome government acquisition process in order to deliver capability to the warfighter in a more efficient and timely manner. Senior DoD leadership approved the JPEO's recommendations, and the JTRS enterprise and the DoD acquisition community moved quickly in a cooperative fashion to prioritize service requirements in an Operational Requirements Document and provide funding to the JPEO for the development of the respective JTRS product lines in accordance with the ORD requirements.

The newly renamed GMR program (formerly Cluster 1) restarted work and focused on the delivery of a capability aligned with the prioritized requirements. The maturity of the pre-engineering development model radios continued to improve and in 2006 the GMR program began delivery of these systems to the future combat system for use in FCS experimentation and testing. All fifty of the initial JTRS GMR Pre-EDM systems ordered by FCS have now been delivered on or ahead of schedule. The systems have been integrated, and are in use, on FCS platforms and in laboratory workstations at numerous locations around the country including, White Sands Missile Range in N.M.; Boeing Laboratories in Huntington Beach and Anaheim, Calif.; the Electronic Proving Ground at Fort Huachuca, Ariz.; Rockwell Collins Laboratories in Cedar Rapids, Iowa; and in BAE Laboratories in Wayne, N.J. These early models of the GMR are demonstrating the leap-ahead capability that was envisioned when DoD leadership conceived the JTRS idea many years ago.

The early version of the new cutting edge networking waveform, the WNW, is already demonstrating the capability to simultaneously run nine different applications (Netmeeting, Netmeeting Chat, Netmeeting Whiteboard, Netmeeting File Transfer [File Transfer Protocol], Speak Freely

[Voice over Internet Protocol], Webcam Transmit [VideoLAN Client], Webcam Receive [VLC], Streaming Video Transmit [VLC] and Logger) and is achieving a total throughput of 1MB per second point to-point. The EDM phase of the program will increase the total throughput to 2MB per second for a point-to-point capability. The GMR is interoperating with legacy SINCGARS radios as well as the developing SLICE (precursor to the SRW) waveform. The GMR is demonstrating continually improving stability in both laboratory and field environments. Voice quality and data transmission completion rates are equal to, or better than, legacy systems. Finally, in a demonstration of the tremendous technology leap GMR provides, the GMR recently demonstrated a first for any DoD radio program; the simultaneous operation of four waveforms on a software defined radio. The four waveforms demonstrated simultaneously were EPLRS, WNW, SINCGARS data, and SINCGARS voice.

GMR set is being tested with ever-increasing vigor and demonstrating consistently increasing capability. Synchronized with the FCS test program the GMR is supporting FCS experimentation and testing en route to the delivery of FCS Spin Out 1. Upon receipt of security certification of the GMR at the conclusion of the GMR product line's Limited User Test in April of 2010, the GMR will be poised to enter its Multi-Service Operational Test and Evaluation.

Lee lost his opportunity to potentially influence the outcome of the Civil War at Gettysburg because he lacked information. U.S. forces on the ground in Somalia could not get timely information regarding their exfiltration route and suffered tremendous casualties as a result. Information dominance at the tactical battle edge is an unquantifiable force multiplier. As the Army begins fielding the GMR after the conclusion of GMR's MOT&E, the warfighter will benefit from the provision of real-time,

multi-dimensional information that will allow commanders and warfighters to shape, fight, and win the battle.

LTC Mason is the product manager for the Joint Tactical Radio System Ground Mobile Radios Program. Mason holds a Bachelor of Science Degree from the United States Military Academy and a Master of Science Degree from Saint Mary's University.

ACRONYM QUICKSCAN

AMF – Airborne, Maritime, Fixed
DoD – Department of Defense
EDM – Engineering Development Model
EPLRS – Enhanced Position Location Reporting System
FCS – Future Combat System
FTP – File Transfer Protocol
GHz – Gigahertz
GIG – Global Information Grid
GMR – Ground Mobile Radios
HF – High Frequency
IAW – In Accordance With
IP – Internet Protocol
JPEO – Joint Program Executive Officer
JTRS – Joint Tactical Radio System
LRU – Line Replaceable Units
LUT – Limited User Test
MHz – Megahertz
MIDS-J – Multi-functional Information Distribution System – JTRS
MOT&E – Multi-Service Operational Test and Evaluation
ORD – Operational Requirements Document
Pre-EDM – Pre-Engineering Development Model
SATCOM – Satellite Communications
SCA – Software Communications Architecture
SINCGARS – Single Channel Ground Air Radio System
SRW – Soldier Radio Waveform
UHF – Ultra High Frequency
U.S. – United States
USD AT&L – Undersecretary of Defense for Acquisition, Technology, and Logistics
VLC – VideoLAN Client
VoIP – Voice over Internet Protocol
WNW – Wideband Networking Waveform

Circuit check

News and trends of interest to the Signal Regiment

NEWS

5TH SIGNAL COMMAND CONDUCTS CHANGE OF COMMAND CEREMONY

By Kristopher Joseph

MANNHEIM, Germany – The reigns of United States Army, Europe's 5th Signal Command were entrusted to a new leader at a change of command ceremony held at the Taylor Barracks Parade Field June 14.

The Dragon Warriors of 5th Signal along with more than 500 guests welcomed incoming commander BG Susan S. Lawrence who accepted the colors from reviewing officer and U.S. Army Europe's Commander GEN David D. McKiernan. Lawrence also assumes duties as the senior mission commander for the Mannheim, Heidelberg, Darmstadt, and Stuttgart military communities as well as USAREUR's chief information officer and assistant chief of staff, G6.

Outgoing commander BG (P) Dennis L. Via served 22 months as 5th Signal's commander and will take charge of the U.S. Communications-Electronic Life Cycle Management Command at Fort Monmouth, N.J. He departs with his wife and their two sons.

"There are no words to adequately express what an honor and privilege it has been to lead and serve in this command," said Via during his outgoing remarks. "I watched in awe as you made excellence routine, the difficult easy, and the complex simple. You are truly unsung heroes, and undoubtedly among the finest communicators in the world."

Lawrence, a native of Ida Grove, Iowa, comes to 5th Signal after serving as the director, com-



Incoming commander BG Susan S. Lawrence accepts the colors and command of the 5th Signal Command from US Army, Europe Commander GEN David D. McKiernan with outgoing commander BG (P) Dennis L. Via looking on during a change of command ceremony on the Taylor Barracks Parade Field in Mannheim, Germany, June 14.



BG Susan S. Lawrence leads her new staff across the Taylor Barracks Parade Field in Mannheim, Germany after accepting responsibility of the 5th Signal Command in a change of command ceremony June 14.

mand and control, communications, and computer systems, J6, of U.S. Central Command. She had previously served in 5th Signal Command as commander of the 7th Signal Brigade from November 2000 to February 2003.

"I look forward to working with this command to ensure we are ready, trained, and equipped to execute any mission, across the full spectrum of operation," she said during her incoming remarks. "Together we will continue to reach new standards and heights founded in our values and warrior ethos. I'm

honored by the selection to command this outstanding unit and am extremely honored to serve with you."

McKiernan also thanked Via and Lawrence during his speech for their service in the signal community and had a few words to say about the command that Lawrence was given charge.

"It's a great day to be a Soldier in United States Army, Europe, and one significant reason for that can be credited to the technical and warfighting efforts of this command. In the last two years, the 5th Signal

Command has been fully engaged in transformation while fighting the global war on terrorism and never allowing a break in communications."

5th Signal Command, headquartered on Funari Barracks, is the Army's largest and most forward deployed theater signal command. The command's mission is providing premier command and information technology support for all major subordinate commands in USAREUR.

Mr. Joseph is with public affairs at the 5th Signal Command, Funari Barracks, Mannheim, Germany, his email address is: kristopher.joseph@eur.army.mil.

DWORACZYK TAKES COMMAND OF 30TH SIG BN

By Bill McPherson

SCHOFIELD BARRACKS, Hawaii – "It's great to join the 30th team," LTC Joseph J. Dworaczyk told the crowd of about 250, as he assumed command of the 30th Signal Battalion from LTC Darryl S. Shaw June 8 at Sills Field.

Dworaczyk also assumed the dual-hatted position as director of information management for the U.S. Army Garrison-Hawaii.

Witnessing the ceremony were his parents, COL (Ret.) and Mrs. Frank Dworaczyk of Austin, Texas, his wife and their daughters.

Following the passing of the battalion colors, the event's reviewing officer, COL Edric A. Kirkman, commander, 516th Signal Brigade, praised Shaw for his accomplishments the past two years and welcomed Dworaczyk as the 516th's newest battalion commander.

"Darryl Shaw's far-reaching vision, innovation, and leadership in both jobs have left a mark," Kirkman said in his remarks.

"Under his leadership, the 30th Signal Battalion played key mission roles in last year's deployment of the 25th Infantry Division to Iraq, and 30th Soldiers and civilians deployed



LTC Joseph J. Dworaczyk assumed command of the 30th Signal Battalion from LTC Darryl S. Shaw June 8 at Sills Field. COL Edric A. Kirkman, commander, 516th Signal Brigade, praised Shaw for his accomplishments the past two years and welcomed him as the 516th's battalion commander.

for numerous operations and exercises," Kirkman added.

Kirkman said Shaw's top priorities for the past year were to bring the new Information Systems Facility into full operational capability, complete secure network expansion for Schofield Barracks, and integrate deployable command and control teams into the battalion.

"Darryl achieved success in each of these priorities," Kirkman noted. "The ISF is now fully staffed and operational, and is a critical enabler for the 25th ID. SIPRNET (Secure Internet Protocol Network) expansion increased by 342 percent for the 25th ID (Infantry Division) headquarters and 133 percent for brigade headquarters. The C2 (command and control) team not only is now fully integrated, trained and providing flawless C2 support to the Warfighter; but is doing its job so well that this spring in worldwide competition, it won the Army's Deployment Excellence Award in the small unit category."

Kirkman praised Shaw and his wife Pamela for their focus on a "one team" atmosphere throughout the 30th/Directorate of Information Management organization, commending their leadership for the battalion's Family Readiness Group and a variety of battalion-sponsored

community service projects.

Kirkman welcomed the Dworaczyks, command, saying, "You are no stranger to Hawaii communicators or to the 516th Signal Brigade, having just completed a tour as the chief operations officer for the Defense Information Systems Agency-Pacific, across the road at Wheeler Army Airfield."

Shaw's next assignment will be with the Joint Chiefs of Staff J-6 Directorate at the Pentagon.

Prior to the ceremony, MG William H. Brandenburg, commander, 8th Sustainment Command, presented Shaw the Meritorious Service Medal (3rd oak leaf cluster) and presented Pamela Shaw with the Signal Corps Regimental Association's Bronze Order of Wahatchee award.

Dworaczyk received his commission in the Signal Corps in 1989 after graduating as a distinguished military graduate from Eastern New Mexico University. He also holds a master's degree in telecommunications management from Webster University.

Airborne qualified, Dworaczyk has had previous Army and Joint Signal assignments in Korea; Germany; Fort Hood, Texas; and Fort Bragg, N.C., as well as Hawaii. *Mr.*

McPherson is with 516th Signal Brigade, Schofield Barracks, Hawaii.

22ND SIGNAL BRIGADE INACTIVATES

By Kristopher Joseph

DARMSTADT, Germany –
“Over and out.”

The final words given in a military radio transmission personify one of the storied signal units in United States Army Europe.

May 22, 2007, marked the day the 22nd Signal Brigade, headquartered in Darmstadt, Germany, inactivated in accordance with the Army’s current transformation policy.

A ceremony was held at Kelly Barracks parade field that included the inactivation of 22nd’s Headquarters and Headquarters Company and its two remaining signal battalions, the 32nd and 440th. The brigade’s other subordinates; the 17th Signal Battalion and the 578th Signal Company were recently inactivated in August 2006.

Known throughout the signal community as “Victory’s Voice,” the 22nd has been the mainstay tactical signal brigade under U.S. Army V Corps since 1981. Prior to that, the brigade went through a period of transitions in concert with four prior inactivations before taking its present shape.

During the ceremony the 22nd, 32nd, and 440th were awarded battle streamers for recent participation in Operation Iraqi Freedom.

V Corps’ Deputy Commander BG Donald M. Campbell Jr. remarked during the ceremony that the inactivation for many is not a moment of sadness, rather it is a celebration of a job exceptionally well done and the mission accomplished.

The 22nd was constituted as Headquarters and Headquarters Company, 22nd Signal Service Group in Mannheim, Germany, on Nov. 14, 1945, with duties supporting the Army of Occupation. It was later inactivated on June 20, 1948.

The 22nd, 32nd and 440th have



22nd Signal Brigade’s CSM John Graves (folding flag) and brigade commander COL Frederick A. Cross (holding flag) furl the colors during the brigade’s inactivation ceremony on Kelly Barracks in Darmstadt, Germany, May 22.

served in Europe in various capacities and at various times since World War II, earning numerous campaign streamers and citations for their involvement in that war and several conflicts and peacekeeping operations since.

In 2002, the brigade deployed all its battalions in support of OIF I. The 22nd was the voice of a corps in the attack. Following the liberation of Baghdad, the brigade established an extensive communications network throughout Iraq. The network extended over an area of approximately 170,000 square miles.

“When we arrived and saw all the smiles on the faces of the Iraqi people, I knew that we were going to make a difference there,” said 22nd’s CSM John Graves, who at the time belonged to the 32nd as a sergeant first class.

OIF I showed the advantages of warfighting with a networked force. Single Channel Tactical Satellite, Field Modulation radio, Node Center 21 at Camp Victory during OIF I and Mobile Subscriber Equipment networks provided commanders with the situational awareness they needed to direct troops and coordinate attacks. The 22nd was awarded the Meritorious Unit



V Corps’ Deputy Commander BG Donald M. Campbell Jr. (left) accepts the furling colors of the 22nd Signal Brigade from the brigade commander COL Frederick A. Cross (right) in an inactivation ceremony on Kelly Barracks May 22, marking the end of the brigade’s 6 decades of service to the U.S. Army.

Citation for providing outstanding communications support during OIF I.

By October 2005, the brigade was back in Baghdad leading a four-battalion and a three separate company task force of more than 3,000 Soldiers. This immense signal force was called, “Task Force Adler,” which is the German word for eagle and is represented on the brigade’s unit patch.

During the deployment Task Force Adler Soldiers conducted

more than 300 convoys totaling over 175,000 miles. The Task Force successfully installed and maintained more than 50 strategic and tactical commercial servers valued at more than \$25 million dollars. Capabilities of the servers included 35 terabytes of storage, over 17,000 network accounts and 8,000 computer accounts. An average of 607,950 e-mails was processed each week with a server reliability rate of 99.4 percent.

"I call us the brigade of choice," said Brigade Commander, COL Frederick A. Cross. "We accomplished every mission for V Corps, and we always extended help to units or missions in and outside our community."

"We were all over the battlefield," said first sergeant Terrence Hamil, in Darmstadt's U.S. Army Garrison Headquarters and Headquarters Detachment, who was assigned to the 22nd during their recent deployment. "The 22nd set the standard for the way signal brigades should operate."

"Our brigade is all about teamwork," said Cross. "Not only within the ranks, but also the friends and family members who without them, we could not have accomplished anything meaningful."

SPC Andy Gifford, 32nd Signal Battalion, said he will always remember how he and his wife were welcomed to his unit with opened arms and thank the 22nd for all the friends they have made along the way.

The brigade made a significant long-term contribution to the communications network by establishing the Joint Network Operations Control Center – Iraq. The JNCC-I became the focal point for all networks monitoring and engineering in the Iraqi theater.

"The highlight for me is that we were able to bring home every person who deployed with us back to their friends and family," said Cross. "There is no greater accomplishment for our deployment in my mind than that."

The 22nd Signal Brigade, with 32nd and 440th Signal Battalions

Former USACC commanding general dies

FORT HUACHUCA, Ariz. (NETCOM/9th SC(A)) – Retired MG Jack A. Albright passed away unexpectedly May 12, at Walter Reed Army Medical Center, Washington, D.C. Albright was the commanding general of the U.S. Army Communications Command from Oct. 29, 1971 to April 29, 1976.

Albright enlisted in the Army in 1939 before becoming an officer in 1942. He served in a variety of positions, instrumental in training and equipping the Signal Corps, and commanding numerous organizations including the White House Communications Agency. Albright was assigned to Fort Huachuca in December 1970, as the deputy commanding general of U.S. Army Strategic Communications Command. After his August 1971

promotion to major general, Albright assumed command in October 1971. The organization was re-named to USACC in October 1973.

Albright's funeral service was held July 27 at the Fort Myer Chapel. He was buried at Arlington National Cemetery with full military honors following the service. The family asks that interested parties make a donation to the Memorial Fund at Wesley United Methodist Church, or to a favorite charity. Those wishing to make a donation to the church may send it to:

The Memorial Fund
In Memory of Jack Albright
Wesley United Methodist Church
1711 Spring Street, SE
Vienna, VA 22180

redeployed from Iraq to Darmstadt during September and October of 2006. Upon redeployment, the brigade was put under the control of U.S. Army European Command's 5th Signal Command and was given the mission to prepare both battalions and the brigade headquarters for inactivation.

Cross added during the ceremony that the 22nd Soldiers and families will be dispersed, planted, and then cultivated in other units making those organizations better across the Army.

"We are going to go out in a blaze of glory," Cross said. "If history repeats itself, and when the Army is in need of a capable signal force, you will see the 22nd flag unfurled once again."

Mr. Joseph is a public affairs specialist, and editor of ECHO, with the 5th Signal Command public affairs office Mannheim, Germany.

GROUNDBREAKING CEREMONY FOR ARMY'S COMPUTER NETWORK DEFENSE FACILITY

By Gordon Van Vleet

NETCOM/9th SC(A) public affairs -- The Network Enterprise Technology Command/9th Signal Command (Army) hosted a groundbreaking ceremony April 19, for the Army's newest computer network defense facility, the Army Global Information Center Network Operations Facility, a multi-million dollar facility that will be responsible for all continental United States Army computer systems and networks.

This construction project for a new, and more technology efficient, computer network defense facility was made possible through the efforts of Arizona state legislators, to include help from Senator Jon Kyl, Senator John McCain, Congresswoman Giffords, former Congress-

man Jim Kolbe, and the NETCOM G-4, COL Joseph L. Garnes and his staff, said COL William J. Scott, NETCOM/9th SC(A) chief of staff.

The plans call for an \$18 million two-story, 53,250 square-foot facility that will be a workplace for more than 380 NETCOM Soldiers and civilians. "Once complete, the building will support the CONUS-Theater Network Operations and Security Center (2nd Signal Center) and portions of the Regional computer Emergency Response Team," said Ron Stewart, deputy director C-TNOSC.

"Together, these organizations operate a service desk that provides direct support to Army installations and users on computer, network and technical security incidents, and a network operations center that monitors the status of Army networks in CONUS," Stewart said. "These two functions, service desk and network monitoring, provide a more advanced level of technical support for Army units in CONUS and deployed to Southwest Asia than is possible using our current operational concept with is, to a degree, constrained by the lack of a world-class facility such as will be provided by the NOF."

The new facility was needed for the additional space as much as the state-of-the-art physical facility. "The C-TNOSC has been at Fort Huachuca since 1992, gradually increasing in size as its role as the central operator of Army networks and computers in CONUS has grown," said Stewart. "Current facilities are remodeled space in 25- to 50-year-old buildings that cannot gracefully support the technical requirements of the C-TNOSC."

Although it will take about 18 months before the facility is complete, the benefits will begin immediately. Fort Huachuca and the Sierra Vista area will benefit from this new construction project. Besides the obvious construction expenditures that help the local economy and businesses, this building will become the premiere Army network operations facility in the world, said Stewart.

The C-TNOSC is one of the avenues open to local graduates who want to gain entry-level experience in the information technology field. "The prestige associated with this will enhance Fort Huachuca's already high standing within the military community," said Stewart. "In economic terms, the NOF will enable continued creation of high-paying technical jobs in the Sierra Vista area."

Mr. Van Vleet, Network Enterprise Technology Command/9th SC(A) public affairs, Fort Huachuca, Ariz.

25TH SIGNAL BATTALION HOSTS GROUND BREAKING CEREMONY AT ISAF HEADQUARTERS IN KABUL, AFGHANISTAN

By CPT Claudis Dalcour

Kabul, Afghanistan — The 25th Signal Battalion conducted a Groundbreaking ceremony on April 28, 2007, for a new Technical Control Facility on the International Security Assistance Force Headquarters in Kabul, Afghanistan.

The construction replaces the

current one-story 320 square foot Technical Control Facility with a \$1.7 million two-story, 960 square-foot facility. The new facility will provide increased space for network equipment along with improved cooling capacity and upgraded security. The expected completion date is late August 2007. Currently, there are over 150 U.S. customers using Non-secure Internet Protocol Router, Secure Internet Protocol Router, and Defense System Network services on ISAF Headquarters with the amount of customers projected to nearly double soon.

The 25th Signal Battalion coordinated with Defense Communications System-Southwest Asia to build the upgraded TCF on ISAF Headquarters. DCS-SWA contracted the construction to Program Analysis and Evaluation who also incorporated other projects such as pit-duct system upgrades and a fiber run from nearby Camp Eggers to decrease the reliance of microwave transmission and provide redundancy of service. These upgrades will increase access speed for high demand systems such as live video feed to better support the Warfighter and allow for network expansion



(left to right) Dawn Longmore, ITT Afghan Country Manager; CPT Tony Dalcour, commander, Echo Co, 25th Signal Battalion; LTC Ronald Schier, 25th Signal Battalion commander; MAJ Frank Huffman, 25th Signal Battalion Projects and Plans OIC; COL Randolph Kranepuhl, 335th TSC Deputy COMMSI, Afghanistan, prepare to break ground for a new Technical Control Facility on the International Security Assistance Force Headquarters in Kabul, Afghanistan.

"The increase of the U.S. presence on the ISAF compound places a heavier demand on U.S. systems and greater premium on customer service. The construction of this new facility will meet the demand of both of the requirements now and for the foreseeable future" said MAJ Frank Huffman, 25th Signal Battalion Projects and Planning OIC. With the transition to ISAF X, commanded by a U.S. four star general, there has been increased expectation and demand of reliable and robust communications.

The main feature the new facility provides is a 24 hour-a-day, 7 day-a-week U.S. Customer Service Help Desk for any telephone or computer issues, the first time on ISAF Headquarters. "Customers on ISAF Headquarters will no longer have to wait for technicians to be dispatched from nearby Camp Eggers for technical support nor will their trouble tickets be tied into their trouble call ticketing system because the ISAF customers will have their own ticketing system. On-site technical support also decreases the need for users to come to nearby Camp Eggers to establish accounts and receive other services. All of these services will be provided on site and be more responsive to the Warfighter's needs" Huffman said.

"This facility shows commitment by the 160th Signal Brigade to better support the Warfighter by ensuring that reliable communications will be provided. Our efforts to upgrade the network and enhance customer service will be beneficial for ISAF, CSTC-A and the U.S. Embassy," said LTC Ronald Schier, 25th Signal Battalion commander.

CPT Dalcour is the commander, Echo Company, 25th Signal Battalion, Camp Eggers, Kabul Afghanistan.

OF INTEREST

THIN CLIENT/SMART CLIENT COMPUTING ARRIVES AT SIGNAL CENTER

By Harold Schliesske



A sample of the twenty iMacs deployed to the FA-24 Modular Classroom across from Cobb Hall.

(Below) NCO Academy students at Moran Hall, Fort Gordon, Ga., using the iMacs for distance learning coursework.



April 2007, the deputy commanding general of the U.S. Army Signal Center initiated a deployment of the latest computing technology from Apple and Wyse. This initiative follows recent Chief Information Office/G6 guidance directing organizations to adopt a thin client computing architecture by September 2009. Spearheading this effort, the Signal Center Office of the CIO, the Leader College for Information Technology and the School of Information Technology along with the 15th Regimental Signal Brigade deployed fifty iMac computers and a Macintosh based server in selected classrooms to support key school-house functions such as distance learning. Soon to follow are thirty Wyse thin clients deployed within both classroom and office environments.

The Army's interest in thin client technology stems from three major advantages; reduced total cost of ownership, ease of administration, and enhanced security. With the simplified hardware construct of a

thin client, initial purchase price, as well as, the maintenance cost are significantly reduced over a traditional "fat client." From the administrator's perspective, managing a central server that controls the client applications significantly reduces touch labor costs for software installations, upgrades, and maintenance. Changes made at the server affect all the clients the next time they reboot. Lastly, the centralized data storage inherent to thin-client technology provides an added layer of data protection. With little or no data residing on the thin-client, a theft or loss of the client discloses very little data to unauthorized individuals. Centralized storage also reduces security costs while enhancing security of data at rest.

The Intel based iMacs are running the latest version of the Mac OS X operating system known as "Tiger" and come with a 20" flat panel monitor, Microsoft Office for Mac productivity software, an integrated web cam, Firefox and Safari web browsers, and virus scanning software. For complete compatibility with Windows-only software and websites, the iMacs use Parallels Desktop for Mac to create a virtual PC allowing the user to run Windows XP simultaneously alongside the Macintosh operating system.

The Wyse implementation consists of two form factors; ten Wyse V00 thin client terminals and twenty standard desktop computers configured to operate as a thin client. Both form factors use the Wyse Streaming Manager software to stream the Windows XP operating system and associated applications from the server to each client. Although the technology behind thin-clients differs from a traditional "fat client" configuration, the user experience is identical. Users will feel at home using the Windows XP operating system and have complete access to the usual suite of productivity software.

We will survey students, instructors, and administrative personnel who use the Apple and Wyse computers to gather feedback and assist us with the decision

making process. In late May 2007, we will present the collected metrics to the commanding general who will decide which if any of these technologies best meets the U.S. Army Signal Center's needs. Please direct any questions or comments on this initiative to LTC Carla Campbell at Carla.Campbell@us.army.mil.

Mr. Schliesske is an intern currently on rotation with Fort Gordon's Chief Information Office as part of the CIO/G6 Army Knowledge Leaders program. He has extensive experience with the Apple platform and served as the project lead for the Apple and Wyse deployments.

SIGNAL CENTER/UMUC PARTNERSHIP

— A CONVENIENT WAY TO EARN GRADUATE CREDITS

By MAJ Russell Fenton

Even though many in the Signal Regiment may not be aware of it, for more than six years, the Signal Center and University of Maryland University Campus have maintained a partnership that offers a convenient way to pursue a graduate degree in the information technology field through both resident seminars at Fort Gordon and online courses available worldwide. The partnership is officially titled, the Signal Regiment Graduate Education Program and the intent of the program is to develop highly educated service members and civilians by offering access to IT-based knowledge that ultimately enhances an individual's ability to support the warfighter. The SRGEP is available to active duty, military students, and permanent party, as well as, civilians and family members. To this date, more than 220 individuals have taken advantage of this opportunity and 45 of those have actually completed the program to earn a Masters of Science degree.

Up to now, the SRGEP has consisted of a total of three – six



(Standing left to right) Al Crawford, interim chief, education services officer; Dr. Shirley A. R. Lewis, president of Paine College; Dr. Rickey McCurry, vice chancellor of Installation Advancement and Chief Executive Officer, Southern Illinois University Foundation; MSG Lewis Brown, Office Chief of Signal, Enlisted Division receives his diploma as he graduates from SIU; assisting with diplomas is Brian Hendricks, Georgia Military College.

Retired COL John F. Jones, assistant vice president for Program Management, Department of Defense Relations, speaks from the podium as Jim Cronin, University Maryland College and University, stands by during the 2007 Annual Graduation ceremony at Fort Gordon .



credit, resident seminars on Fort Gordon that could be applied towards a Masters of Science degree in computer systems management, telecommunications management, information technology, and technology management. The advantage of the program has been the fact that once students completed all three seminars, or departed Fort Gordon, remaining degree requirements could be completed online, via the World Wide Web, in an asynchronous format. An asynchronous format allows participants to fulfill class requirements when it is convenient to them. In fact, many who are currently deployed in Iraq and

Afghanistan participate in UMUC's web-based, graduate education programs.

In the Fall 2007 term, UMUC will offer a new M.S. degree in IT that enables an individual to specialize in one of eight areas: database systems technology, e-business, homeland security management, informatics, information assurance, project management, software engineering, and telecommunications management. The M.S. degree in IT, a 36-credit hour program, provides a broad technical understanding of current and evolving technologies in the IT field with an

emphasis on moving technology from the laboratory to the realm of business development through its program core courses. In response to the change in the UMUC program, beginning September 2007, the SGREP will offer four new core classes at Fort Gordon on approximately 24-week rotational basis; totaling 12 resident, graduate credits of the 36-credit requirement. It's a great way to earn one third of the total requirement!! Students of the SRGEP will continue to have the opportunity to complete the remaining requirements online.

Officers attending the Signal Basic Officer Leadership Course III, the Signal Captain Career Course, or the Information Systems Management Course typically are able to complete at least six credits while at Fort Gordon. Some students who remain at Fort Gordon for extended periods of time are able to continue taking resident seminars. All are able to continue their graduate program on-line from any location worldwide, and they have up to seven years to complete degree requirements. As stated before, many officers who are currently deployed in Iraq and Afghanistan are enrolled in UMUC graduate programs; thus six credits is a great start to the fulfillment of an IT degree.

UMUC has made the program especially attractive to Telecommunications Systems Engineering Course students and FA24 officers by granting 15 graduate credits towards the M.S. IT degree. This means that with the combination of TSEC and SRGEP, an FA24 is only required to take two online courses. At the time of this article, we are pursuing approval of a cooperative degree program, wherein FA24 officers interested in earning an M.S. IT degree can remain at Fort Gordon for one university term after graduation of TSEC to complete degree requirements.

Interested officers can also enroll in the SRGEP from anywhere they are assigned and complete the M.S. degree program entirely on-line.

If you are interested in more information, visit the UMUC website at http://www.umuc.edu/mil/asc/asc_it.html or call MAJ Russell Fenton, Office Chief of Signal, at 706-791-6305.

MAJ Fenton currently serves as the Telecommunications Systems Engineer (FA24) proponent manager in the Office Chief of Signal, Fort Gordon, Ga. Prior to his current assignment he was the Enterprise Systems Management branch chief, Theater Network Operations and Security Center - Korea, responsible for monitoring the faults, configuration, security, and performance of approximately 30,000 Army computer systems on the Korean peninsula. Additional assignments include commander, C Company, 307th Signal Battalion, 1st Signal Brigade; Area Node Platoon leader, C Company, 67th Sig Bn, 93rd Signal Brigade; and company executive officer, B Company, 442nd Signal Battalion.

COMBINED ENDEAVOR 07 BRINGS NATIONS TOGETHER



U.S. Army SPC Tab Merkel, 101st Signal Battalion, watches as radio operator, Marine Corps Lance CPL Kevin VargasColon, 6th Communications Battalion makes a connection with Germany administering a radio test during Combined Endeavor 2007. CE07, a U.S. European Command-sponsored exercise, brings the U.S., NATO, Partnership for Peace and other nations together to plan and execute interoperability testing of command, control, communications and computer systems from participant nations in preparation for future combined humanitarian, peacekeeping and disaster relief operations.

The U.S. European Command USEUCOM sponsored the thirteenth annual "in-spirit-of" Partnership for Peace communications and information systems interoperability exercise April 27 through May 10 at Lager Aulenbach in Baumholder, Germany, and at the forward operating site at the Air Institute in Yerevan, Armenia.

Dubbed COMBINED ENDEAVOR 2007, the exercise is the largest and most powerful security cooperation effort of its kind and directly supports the transformation of USEUCOM. The exercise is a demonstration of true "Active Security" - a peaceful engagement that can result in the prevention of future conflicts. The exercise emphasizes command, control, communications and computer integration and interoperability as its goal. NATO, PfP and strategic partner nations came together to plan and execute interoperability testing of C4 equipment systems from participant nations which support combined humanitarian, military, peacekeep-

ing and disaster relief operations. The overall objective was to achieve a level of interoperability and compatibility allowing nations to successfully conduct future multinational operations. The exercise reduces the likelihood that discovery learning will occur on deployment.

CE 07 will increase participating nations' flexibility, agility, and efficiency to be prepared to rapidly deploy for joint and combined operations. Last year, nations were operationally successful in real-world operations:

✂ France, Russia and Italy on the United Nations deployment to Lebanon

✂ United Kingdom, Lithuania and South Eastern European Brigade preparation to support the International Security Assistance Force in Afghanistan

In addition to developing strategic partners on four continents, the nations are able to integrate and test the world's best C4 equipment, which often leads to nations being able to skip generations of technology as a result. The simple concept that the original EUCOM planners envisioned thirteen years ago of enabling countries to effectively communicate has the potential to evolve into a "Global Endeavor" of worldwide workshops.

More than 1,200 personnel from 43 nations over four continents and two unified commands as well as NATO participated in the exercise at the two locations. More than 1,200 military and civilian personnel supported the exercise at Lager Aulenbach, Germany, with many German military personnel providing transportation, housing, food, security and medical services and equipment. An additional 150 personnel supported the forward deployment site in Armenia.

CE 07 leads the way in enabling and enhancing nations in their quest to achieve a higher level of operational readiness not only within the USEUCOM's area of responsibility, but with other nations around the world. For more information on CE 07 go to <http://www.combinedendeavor.net/>

ARMY DEPLOYMENT EXCELLENCE AWARD COMPETITION ANNOUNCED

Any Active Army, Reserve, and National Guard unit or installation can participate in the Army's 2008 Deployment Excellence Award competition which opened on Dec. 1, 2006, and runs through Nov. 30, 2007. The requirement for the competition is for the unit to have executed or supported a training or contingency deployment during the competition year.

Each winner and runner-up unit in their category will be able to send two unit representatives to Washington, D.C., for an expense paid, four-day trip to accept the unit awards. The trip includes travel, per diem, lodging, and ground transportation costs; time for shopping; tours of the D.C. area; and a photo with the Army Chief of Staff.

Significant dates for the 2008 competition year:

- **2008 DEA Competition period:** Dec. 1, 2006 - Nov. 30, 2007
- **When to submit nomination packets:** Dec. 1, 2007- Jan. 31, 2008
- **Who to submit nomination packets to:** Submit packets through your chain of command. After Chain of Command endorsements are completed, packets need to be forwarded to the nominated unit's respective Army Command, Army Service Component Command or Direct Reporting Unit.
- **Nomination packet due date to DEA Board:** Jan. 31, 2008. Nomination packets are due from Army Commands, Army Service Component Commands and Direct Reporting Units to the DEA evaluation board.
- **DEA Competition Board:** Feb. 4 -15, 2008. Semifinalists selected and notified by Feb. 28, 2008.
- **Onsite DEA Validation Team visits:** March 3 - 26, 2008. Teams visit semifinalist's home station to validate deployment practices.
- **Release of official DA message announcing DEA winners:** April 13, 2008.
- **Date of DEA Award ceremony:** June 3, 2008. DEA awards are presented at the Chief of Staff, Army Combined Logistics Excellence Award ceremony and banquet.

DEA guidance and evaluation criteria can be found on the Deployment Process Modernization Office Web site: <https://www.deploy.eustis.army.mil>

ACRONYM QUICKSCAN

9th SC(A) – 9th Signal Command (Army)
 C2 – command and control
 C4 – command, control, communications and computer
 CE 07 – COMBINED ENDEAVOR 2007
 COMMSI – Communications Integrator
 CONUS – Continental United States
 CSTC-A – Combined Security Transition Coalition - Afghanistan
 C-TNOSC – CONUS-Theater Network Operations and Security Center
 DCS-SWA – Defense Communications System-Southwest Asia
 DEA – Deployment Excellence Award
 DSN – Defense System Network
 DOIM – director of information management
 ID – Infantry Division
 ISAF – International Security Assistance Force
 ISF – Information Systems Facility
 ISO – in-spirit-of
 IT – Information Technology
 ITT – ITT Corporation
 JNCC-I – Joint Network Operations Control Center – Iraq
 M.S. – Master of Science

MSM – Meritorious Service Medal
 NETCOM – Network Enterprise Technology Command
 NIPR – Non-secure Internet Protocol Router
 NOF – Network Operations Facility
 OIF – Operation Iraqi Freedom
 PAE – Program Analysis and Evaluation
 PfP – Partnership for Peace
 SEEBRIG – South Eastern European Brigade
 SGREP – Signal Regiment Graduate Education Program
 SIPR – Secure Internet Protocol Router
 SIPRNET – Secure Internet Protocol Network
 TCF – Technical Control Facility
 TSEC – Telecommunication Systems Engineering Course
 TSC – Theater Signal Command
 USAREUR – United States Army, European Command
 UMUC – University of Maryland University Campus
 USEUCOM – U.S. European Command

*Chief of Signal Comments Continued
from the Inside Front Cover*

late regarding distance and distributed services. Given the operations tempo and pace of change, it is vital to our Soldiers and their mission that we provide the most current training available anywhere in the Army today.

It has been an incredibly exciting time to serve as your Chief of Signal. Regardless of the daunting challenges, your indomitable spirit has always risen

to every occasion. In all of my travels and especially in my discussions with the combat commanders at all levels, they continue to praise the Signal Soldiers and leaders. Our new Chief of Staff of the Army, GEN George William Casey Jr., decided to visit the Signal Center as one of his first stops in his new assignment. While here he stated, "the Army of today is about the network and without us, there is no network." To every member of the Regiment, military, civilian, and contractors, I thank you for your continued service to our Regiment and

to our nation at war. You have made me incredibly proud to have served on your team.

Honor and glory to the Regiment!
BG Randolph P. Strong
Chief of Signal

ACRONYM QUICKSCAN

JNN – Joint Network Node
LWN-U – LandWarNet-University
MOS – military occupational specialty
OPTEMPO – operations tempo



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335TH SIGNAL COMMAND

335th Signal Command located in East Point, Ga. The 335th Signal Command can offer the opportunity to remain 'Army Strong' ready to serve when needed. This Enduring Command remains on the cutting edge of technology. We are the Army's premiere communications command!

For more information contact: SFC Corey Daniels at 1-800-221-9398 ext 5403 E-mail: corey.daniels@usar.army.mil

359TH THEATER TACTICAL SIGNAL BRIGADE

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